



SAFETY DATA SHEET

Acetone

SECTION 1: IDENTIFICATION OF THE SUBSTANCE/MIXTURE AND OF THE COMPANY/UNDERTAKING

1.1. Product identifier

Product name	Acetone
Product No.	0375
REACH Registration number	01-2119471330-49-xxxx
CAS-No.	67-64-1
EU Index No.	606-001-00-8
EC No.	200-662-2

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

Identified uses	Solvent for Industrial Use
	Chemical intermediate
	Uses in coatings
	Laboratories
	Use in cleaning agents
	Use as binders and release agents
	Rubber production and processing
	Polymer manufacturing
	Polymer processing
	Use in Oil and Gas field drilling and production operations
	Blowing agents
	Mining chemicals

1.3. Details of the supplier of the safety data sheet

Supplier	JOVS LTD 588D GLASGOW ROAD CLYDEBANK G81 1NH T +44 141 261 2609 jovssltd@gmail.com / info@jovs.co.uk
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1.4. Emergency telephone number

0207 405 5375 (National Chemical Emergency Centre)
0870 190 6777 (National Chemical Emergency Centre)

SECTION 2: HAZARDS IDENTIFICATION

2.1. Classification of the substance or mixture

Classification (EC 1272/2008)

Physical and Chemical Hazards	Flam. Liq. 2 - H225
Human health	EUH066; Eye Irrit. 2 - H319; STOT SE 3 - H336
Environment	Not classified.

Classification (67/548/EEC)

Xi; R36. F; R11. R66, R67.

The Full Text for all R-Phrases and Hazard Statements are Displayed in Section 16.

Human health

In high concentrations, vapours may be irritating to the respiratory system. In case of overexposure, organic solvents may depress the central nervous system causing dizziness and intoxication, and at very high concentrations unconsciousness and death. The liquid may irritate the skin, the eyes and the respiratory tract.

Acetone

Physical and Chemical Hazards

Vapours are heavier than air and may travel along the floor and in the bottom of containers. The product is highly flammable, and explosive vapours/air mixtures may be formed even at normal room temperatures.

2.2. Label elements

EC No. 200-662-2

Label In Accordance With (EC) No. 1272/2008



Signal Word Danger

Hazard Statements

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

Precautionary Statements

P210	Keep away from heat/sparks/open flames/hot surfaces. - No smoking.
P243	Take precautionary measures against static discharge.
P305+351+338	IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P403+235	Store in a well-ventilated place. Keep cool.
P405	Store locked up.

Supplemental label information

EUH066	Repeated exposure may cause skin dryness or cracking.
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2.3. Other hazards

SECTION 3: COMPOSITION/INFORMATION ON INGREDIENTS

3.1. Substances

Product name	Acetone
REACH Registration number	01-2119471330-49-xxxx
CAS-No.	67-64-1
EU Index No.	606-001-00-8
EC No.	200-662-2
Gross Formula	C3H6O

SECTION 4: FIRST AID MEASURES

4.1. Description of first aid measures

General information

NOTE! Keep affected person away from heat, sparks and flames! Following ingestion, adsorbants such as activated charcoal may be of value.

Inhalation

Move the exposed person to fresh air at once. Perform artificial respiration if breathing has stopped. When breathing is difficult, properly trained personnel may assist affected person by administering oxygen. Keep the affected person warm and at rest. Get prompt medical attention.

Ingestion

Rinse mouth thoroughly. DO NOT induce vomiting. Get medical attention immediately. Provide rest, warmth and fresh air.

Skin contact

Remove affected person from source of contamination. Immediately remove contaminated clothing. Rinse immediately with plenty of water. Continue to rinse for at least 15 minutes. Get medical attention if irritation persists after washing.

Eye contact

Promptly wash eyes with plenty of water while lifting the eye lids. Continue to rinse for at least 15 minutes and get medical attention.

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

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

SECTION 5: FIREFIGHTING MEASURES

Acetone

5.1. Extinguishing media

Extinguishing media

Extinguish with alcohol-resistant foam, carbon dioxide or dry powder. Water spray, fog or mist. Dry chemicals, sand, dolomite etc.

Unsuitable extinguishing media

Do not use water jet as an extinguisher, as this will spread the fire.

5.2. Special hazards arising from the substance or mixture

Unusual Fire & Explosion Hazards

HIGHLY FLAMMABLE! Forms explosive mixtures with air. May travel considerable distance to source of ignition and flash back.

Specific hazards

Fire creates: Oxides of: Carbon.

5.3. Advice for firefighters

Special Fire Fighting Procedures

Keep run-off water out of sewers and water sources. Dike for water control. Avoid water in straight hose stream; will scatter and spread fire. Use water spray to reduce vapours. If risk of water pollution occurs, notify appropriate authorities. Water spray should be used to cool containers. Wear self contained breathing apparatus

Protective equipment for fire-fighters

Self contained breathing apparatus and full protective clothing must be worn in case of fire.

SECTION 6: ACCIDENTAL RELEASE MEASURES

6.1. Personal precautions, protective equipment and emergency procedures

Wear appropriate protective clothing and respiratory protection. Ensure good ventilation. Avoid inhalation of vapours and contact with skin and eyes. Vapour may cause drowsiness and dizziness. Repeated exposure can cause skin drying and cracking.

6.2. Environmental precautions

Do not let the product or washing down water enter natural water courses or the sewer.

6.3. Methods and material for containment and cleaning up

Extinguish all ignition sources. Avoid sparks, flames, heat and smoking. Ventilate. Provide ventilation and confine spill. Do not allow runoff to sewer. Absorb in vermiculite, dry sand or earth and place into containers.

6.4. Reference to other sections

SECTION 7: HANDLING AND STORAGE

7.1. Precautions for safe handling

Keep away from heat, sparks and open flame. Avoid spilling, skin and eye contact. Ventilate well, avoid breathing vapours. Use approved respirator if air contamination is above accepted level. Container must be kept tightly closed.

7.2. Conditions for safe storage, including any incompatibilities

Flammable/combustible - Keep away from oxidisers, heat and flames. May attack some plastics, rubber and coatings. Store in tightly closed original container in a dry, cool and well-ventilated place. Ground container and transfer equipment to eliminate static electric sparks. Suitable containers: mild steel, stainless steel. Aluminium and its alloys. Copper and its alloys. Do not store in certain plastics.

Storage Class

Flammable liquid storage.

7.3. Specific end use(s)

SECTION 8: EXPOSURE CONTROLS/PERSONAL PROTECTION

8.1. Control parameters

Name	STD	TWA - 8 Hrs		STEL - 15 Min		Notes
Acetone	OES	500 ppm		1500 ppm		

DNEL

Industry	Dermal	Long Term	186	mg/kg/day
Industry	Inhalation.	Short Term	2420	mg/m3
Industry	Inhalation.	Long Term	1210	mg/m3
Consumer	Oral	Long Term	62	mg/kg/day
Consumer	Dermal	Long Term	62	mg/kg/day
Consumer	Inhalation.	Long Term	200	mg/m3

Acetone

PNEC	10.6	mg/l
Freshwater Marinewater	1.06	mg/l
Sediment	30.4	mg/kg
Sediment	3.04	mg/kg
Soil	0.112	mg/kg
STP	29.5	mg/l

8.2. Exposure controls

Protective equipment



Process conditions

Provide eyewash, quick drench.

Engineering measures

Provide adequate general and local exhaust ventilation.

Respiratory equipment

In case of inadequate ventilation, use air-supplied full-mask.

Hand protection

Use protective gloves made of: Butyl rubber. Use full length gloves. Manufactured/tested in accordance with EN 374. Determined penetration times carried out in accordance with EN374 part III are not performed under practical conditions, therefore, a maximum wearing time corresponding to 50% of the penetration time is recommended.

Eye protection

If risk of splashing, wear safety goggles or face shield. Manufactured/Tested in accordance with EN 166.

Other Protection

Use engineering controls to reduce air contamination to permissible exposure level. Wear appropriate clothing to prevent repeated or prolonged skin contact. Wear air-supplied mask in confined areas. Provide eyewash station and safety shower.

Hygiene measures

Wash hands at the end of each work shift and before eating, smoking and using the toilet. Wash promptly if skin becomes contaminated. DO NOT SMOKE IN WORK AREA! Isolate contaminated clothing and wash before reuse.

SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES

9.1. Information on basic physical and chemical properties

Appearance	Clear liquid.
Colour	Colourless.
Odour	Sweetish. Aromatic.
Solubility	Miscible with water
Initial boiling point and boiling range	56
Melting point (°C)	-95
Relative density	0.79 20
Vapour density (air=1)	2.1
Vapour pressure	240 hPa 20
Evaporation rate	2.0 (EtEt=1)
pH-Value, Diluted Solution	5-6 50
Solubility Value (G/100G H ₂ O@20°C)	100
Flash point	-17 CC (Closed cup).
Auto Ignition Temperature (°C)	465
Flammability Limit - Lower(%)	2.50
Flammability Limit - Upper(%)	14.3
Partition Coefficient (N-Octanol/Water)	-0.24

9.2. Other information

Refractive Index	1.358 - 1.359
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SECTION 10: STABILITY AND REACTIVITY

10.1. Reactivity

Acetone

Reaction with: Alkalis.

10.2. Chemical stability

Stable under normal temperature conditions and recommended use.

10.3. Possibility of hazardous reactions

Hazardous Polymerisation

Will not polymerise.

10.4. Conditions to avoid

Avoid heat, flames and other sources of ignition. Avoid contact with strong oxidisers.

10.5. Incompatible materials

Materials To Avoid

Strong oxidising substances. Strong alkalis. Amines.

10.6. Hazardous decomposition products

Fire creates: Oxides of: Carbon.

SECTION 11: TOXICOLOGICAL INFORMATION

11.1. Information on toxicological effects

Toxic Dose 1 - LD 50

5800 mg/kg (oral rat)

Toxic Conc. - LC 50

76 mg/l/4h (inh-rat)

Toxicological information

Low order of acute toxicity. Oral rat LD50:1700-10700mg/kg. A single application to the rabbit eye produced conjunctival irritation and transient corneal damage (stippling epithelial damage): A single 4h semi occlusive application to intact rabbit skin produced no sign of dermal irritation. The product did not exhibit mutagenic activity (with and without metabolic activation) in: Salmonella typhimurium. Chinese hamster ovary cells and human lymphocytes. Negative results were achieved during studies designed to investigate the potential to induce birth defects by inhalation.

Acute toxicity:

Acute Toxicity (Dermal LD50)

> 15800 mg/kg Rat

Skin Corrosion/Irritation:

Irritating.

Serious eye damage/irritation:

Moderately Irritating.

Germ cell mutagenicity:

Negative.

Inhalation

Vapours may cause drowsiness and dizziness.

Skin contact

Repeated exposure may cause skin dryness or cracking.

Eye contact

Irritating to eyes. May cause chemical eye burns.

Health Warnings

Gas or vapour is harmful on prolonged exposure or in high concentrations. Irritant of eyes and mucous membranes. Narcotic effect. CNS depressant. Prolonged or repeated contact leads to drying of skin. Repeated exposure may cause chronic eye irritation.

Route of entry

Inhalation. Skin absorption.

Acetone

Target Organs

Central nervous system Eyes Gastro-intestinal tract Respiratory system, lungs Skin

Medical Symptoms

Irritation of eyes and mucous membranes. Upper respiratory irritation. Skin irritation.

Medical Considerations

Skin disorders and allergies.

SECTION 12: ECOLOGICAL INFORMATION

12.1. Toxicity

LC 50, 96 Hrs, Fish mg/l >5500

Acute Toxicity - Fish

LC50 96 hours 5540 mg/l Onchorhynchus mykiss (Rainbow trout)

EC 50, 48 Hrs, Daphnia, mg/l 8800

12.2. Persistence and degradability

Degradability

Readily biodegradable.

12.3. Bioaccumulative potential

Bioaccumulative potential

The product is not bioaccumulating.

Bioaccumulation factor

BCF 3

Partition coefficient -0.24

12.4. Mobility in soil

Adsorption/Desorption Coefficient

Soil 1.5 20

Henry's Law Constant

2929 Pa m³/mol 25

12.5. Results of PBT and vPvB assessment

This product does not contain any PBT or vPvB substances.

12.6. Other adverse effects

SECTION 13: DISPOSAL CONSIDERATIONS

General information

Contaminated packages must be completely emptied before sending away for laundering and re-use.

13.1. Waste treatment methods

Incinerate in suitable combustion chamber. Absorb in vermiculite or dry sand and dispose of at a licenced hazardous waste collection point. Confirm disposal procedures with environmental engineer and local regulations. Do not allow runoff to sewer, waterway or ground. Uncleaned empty packages should be disposed of in the same manner as the contents.

Waste Class

EWC NUMBER: Allocation of a waste code number in accordance with the European Waste Catalogue, should be carried out in agreement with an EA authorised waste disposal company.

SECTION 14: TRANSPORT INFORMATION

14.1. UN number

UN No. (ADR/RID/ADN) 1090

UN No. (IMDG) 1090

UN No. (ICAO) 1090

14.2. UN proper shipping name

Proper Shipping Name ACETONE

14.3. Transport hazard class(es)

ADR/RID/ADN Class 3

Acetone

ADR Label No. 3
ICAO Class/Division 3
Transport Labels

**14.4. Packing group**

ADR/RID/ADN Packing group II
ICAO Packing group II

14.5. Environmental hazards

Environmentally Hazardous Substance/Marine Pollutant
No.

14.6. Special precautions for user

EMS F-E, S-D
Emergency Action Code 2YE
Hazard No. (ADR) 33
Tunnel Restriction Code (D/E)

14.7. Transport in bulk according to Annex II of MARPOL73/78 and the IBC Code**SECTION 15: REGULATORY INFORMATION****15.1. Safety, health and environmental regulations/legislation specific for the substance or mixture****Guidance Notes**

Workplace Exposure Limits EH40.

EU Legislation

Regulation (EC) No 1272/2008 CLP. Regulation (EC) No 1907/2006 REACH.

Water hazard classification

WGK 1

15.2. Chemical Safety Assessment

A chemical safety assessment has been carried out.

SECTION 16: OTHER INFORMATION**General information**

Since empty containers retain product residue, follow label warnings, even after container is emptied. For further Health and Safety information contact: Health and Safety Officer. Labels should not be removed from containers until they have been cleaned and no product remains within.

Information Sources

Approved Supply List Dangerous Substances Directive Dangerous Preparations Directive

Revision Comments

Inclusion of Exposure Scenarios

Issued By Compliance Department
Revision Date 28/02/2012
Revision 4
Supersedes date 26/05/2011
SDS No. 0375
Safety Data Sheet Status Approved.
Date 28-Feb-12

Acetone**Risk Phrases In Full**

R11	Highly flammable
R36	Irritating to eyes.
R66	Repeated exposure may cause skin dryness or cracking.
R67	Vapours may cause drowsiness and dizziness.

Hazard Statements In Full

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

Disclaimer

This 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. Such information is, to the best of the company's knowledge and belief, accurate and reliable as of the date indicated. However, no warranty guarantee or representation is made to its accuracy, reliability or completeness. It is the user's responsibility to satisfy themselves as to the suitability of such information for his own particular use.

Exposure and Risk Assessment

- Annex I Worker Exposure and Risk Assessment
- Annex II Consumer Exposure and Risk Assessment
- Annex III Environmental Exposure and Risk Assessment
- Annex IV Environmental Exposure Calculation Tool

Acetone - Quantitative exposure and risk assessment for human health

Worker exposure

Shown are the result of the quantitative exposure and risk assessment prepared based on the Cefic tool “GES Worker Chemical Safety Assessment (CSA) Template”.

This tool can be downloaded from the Cefic website:

<http://cefic.org/templates/shwPublications.asp?HID=750&T=806>

The report is divided in the two worker subgroups:

1. Industrial and
2. Professional.

For both subgroups different uses were identified and presented as follows:

1. List of identified GES (Generic Exposure Scenarios),
2. Summary of identified Process categories (PROCs)
3. The actual exposure scenarios

The exposure scenarios include five chapters:

1. Identification [physico-chemical substance properties, reference values (DNELs), general risk management measures (RMMs) which consider the physico-chemical properties or local hazard effects of the substance]
2. Proposed risk management measures (RMMs) and operational conditions (OCs)
3. Inhalation exposure estimations
4. Dermal exposure estimations
5. Risk characterisation ratio (RCR)

Please note: Recurring PROCs means, that several options for safe use are available.

Consumer exposure

Shown are the result of the quantitative exposure and risk assessment prepared based on the “ESIG GES Consumer Tool”. This tool can be downloaded from the ESIG website:

<http://www.esig.org/en/regulatory-information/reach/ges-library/consumer-gess>

The report presents the identified uses as follows:

4. List of identified GES (Generic Exposure Scenarios),
5. Summary of identified PCs
6. the actual exposure scenarios include the operational conditions (OCs) and risk management measures (RMMs) for safe use

Acetone - Industrial

Identified Industrial Generic Exposure Scenarios (GESs) of Acetone

GES No. EC No. CAS No.	Subsector	Main SU	Description	PROC	ERC	Acetone 200-662-2 67-64-1
1	Manufacture, Processing and Distribution of substances and mixtures	All Industrial Uses (SU3)	Manufacture, Processing (see examples below ¹), Formulation and Distribution of the substance or mixtures. Includes recycling/ recovery, material transfers, storage, maintenance and loading (including marine vessel/barge, road/rail car and bulk container), sampling and associated laboratory activities	PROC1, PROC2, PROC3, PROC4, PROC5, PROC6, PROC8a, PROC8b, PROC9, PROC10, PROC14, PROC15	ERC1, ERC2, ERC4, ERC6a ERCs are to be checked with the ECT tool	x
2	Use in laboratories	All Industrial Uses (SU3)	Use of the substance within laboratory settings, including material transfers and equipment cleaning	PROC10, PROC15	ERC4 ERCs are to be checked with the ECT tool	x + PROC19
3	Uses in Coatings	All Industrial Uses (SU3)	Covers the use in coatings (paints, inks, adhesives, and production of textiles, etc) including exposures during use (including materials receipt, storage, preparation and transfer from bulk and semi-bulk, application by spray, roller, spreader, dip, flow, fluidised bed on production lines and film formation) and equipment cleaning, maintenance and associated laboratory activities.	PROC5, PROC8a, PROC10, PROC13	ERC4 ERCs are to be checked with the ECT tool	x + PROC1, PROC2, PROC3, PROC4, PROC7, PROC8b, PROC9, PROC15, PROC19
4	Use as binders and release agents	All Industrial Uses (SU3)	Covers the use as binders and release agents including material transfers, mixing, application (including spraying and brushing), mould forming and casting, and handling of waste.	PROC1, PROC2, PROC3, PROC4, PROC5, PROC6, PROC7, PROC8a, PROC8b, PROC9, PROC10, PROC13	ERC5 ERCs are to be checked with the ECT tool	x
5	Rubber production and processing	All Industrial Uses (SU3)	Manufacture of tyres and general rubber articles, including processing of raw (uncured) rubber, handling and mixing of rubber additives, vulcanising, cooling and finishing.	PROC1, PROC2, PROC3, PROC4, PROC5, PROC6, PROC7, PROC8a, PROC8b, PROC9, PROC10, PROC13, PROC14	ERC6d ERCs are to be checked with the ECT tool	x

Acetone - Industrial

GES No. EC No. CAS No.	Subsector	Main SU	Description	PROC	ERC	Acetone 200-662-2 67-64-1
6	Polymer manufacturing	All Industrial Uses (SU3)	Manufacturing of formulated polymers including material transfers, additives handling (e.g. pigments, stabilisers, fillers, plasticisers, etc.), moulding, curing and forming activities, material re-works, storage and associated maintenance.	PROC1, PROC2, PROC3, PROC4, PROC5, PROC6, PROC8a, PROC8b, PROC9, PROC10, PROC13, PROC14, PROC15	ERC6d ERCs are to be checked with the ECT tool	x
7	Polymer processing	All Industrial Uses (SU3)	Processing of formulated polymers including material transfers, additives handling (e.g. pigments, stabilisers, fillers, plasticisers, etc.), moulding, curing and forming activities, material re-works, storage and associated maintenance.	PROC1, PROC2, PROC3, PROC4, PROC5, PROC6, PROC8a, PROC8b, PROC9, PROC10, PROC13, PROC14, PROC15	ERC6d ERCs are to be checked with the ECT tool	x
9	Use in Cleaning Agents	All Industrial Uses (SU3)	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.	PROC1, PROC2, PROC3, PROC4, PROC5, PROC7, PROC8a, PROC8b, PROC9, PROC10, PROC13, PROC19	ERC4 ERCs are to be checked with the ECT tool	x
10	Use in Oil field drilling and production operations	All Industrial Uses (SU3)	Covers the use as a component of cleaning products including transfer from storage, pouring/unloading from drums or containers.	PROC1, PROC2, PROC3, PROC4, PROC8a, PROC8b	ERC 4 ERCs are to be checked with the ECT tool	x
11	Blowing agents	All Industrial Uses (SU3)	Use as a blowing agent for rigid and flexible foams, including material transfers, mixing and injection, curing, cutting, storage and packing	PROC1, PROC2, PROC3, PROC8b, PROC9, PROC12	ERC4, (ERC10a) ERCs are to be checked with the ECT tool	x
12	Mining chemicals	All Industrial Uses (SU3)	Covers the use of the substance in extraction processes at mining operations, including material transfers, winning and separation activities, and substance recovery and disposal.	PROC1, PROC2, PROC3, PROC4, PROC5, PROC8b, PROC9	ERC8d ERCs are to be checked with the ECT tool	x

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

² Polymer Examples: FRP, UV, VE

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

Acetone - Industrial

Identified Industrial PROCs

PROC No.	Acetone
EC No.	200-662-2
CAS No.	67-64-1
PROC1	x
PROC2	x
PROC3	x
PROC4	x
PROC5	x
PROC6	x
PROC7	x
PROC8a	x
PROC8b	x
PROC9	x
PROC10 (2 uses)	x
PROC12	x
PROC13	x
PROC14	x
PROC15	x
PROC19	x
Sum	16

Generic Exposure Scenario:

Substance specific information		Reference Values		
Substance		DNEL worker - inhalation (long term)	500	ppm
CASnr	67-64-1	DNEL worker - inhalation (short term)		ppm
Substance volatility:	233 hPa	DNEL worker - dermal (long term)	186	mg/kg/day
TRA volatility range	high			
physical property	liquid			
Section 1				
Exposure Scenario Title				
Main sector of Use: SU3 = All Industrial Uses				
All Industrial Processes relevant for Acetone and Acetone containing products.				
SU3 = All Industrial Uses				
PROC1, PROC2, PROC3, PROC4, PROC5, PROC6, PROC7, PROC8a, PROC8b, PROC9, PROC10, PROC12, PROC13, PROC14, PROC15, PROC19				
ERCs and local conditions are to be checked with the Excel tool ECT Acetone				
Default Operational Conditions				
Product characteristics				
Acute Hazard	R phrases: 11-Highly flammable, 36-Irritating to eyes, 66-Repeated exposure may cause skin dryness or cracking, 67-Vapours may cause drowsiness and dizziness			
General measures	Locate bulk storage outdoors [E2] Use suitable eye protection [PPE26] If repeated and/or prolonged skin exposure to the substance is likely, then wear suitable gloves tested to EN374 and provide employee skin care programmes [PPE20] Provide a good standard of general ventilation. Natural ventilation is from doors, windows etc. Controlled ventilation means air is supplied or removed by a powered fan. [E1]			
concentration of substance in product	Covers percentage substance in the product up to 100 % (unless stated differently) [G13].			
physical form of product	Liquid, vapour pressure > 10 kPa [OC5].			
frequency and duration of use	Covers daily exposures up to 8 hours (unless stated differently) [G2]			
other Operational Conditions of use	Assumes a good basic standard of occupational hygiene is implemented [G1]. ;			

Industrial Processes relevant for Acetone and Acetone containing products

CSR-Worker-Acetone-ind \ Identification

Section 2	Operational conditions and risk management measures
Section 2.1	Control of environmental exposure
Product characteristics	substance is a unique structure, ketone, readily biodegradable
Amounts used	Annual site tonnage (tonnes/year): please use the Excel-Tool 'ECT Acetone' to calculate your maximum tonnage/year
Frequency and duration of use	Emission Days (days/year): 360d/y
Other Operational Conditions of use affecting environmental exposure	Indoor/Outdoor use
Technical onsite conditions and measures to reduce or limit discharges, air emissions and releases to soil	Common practices vary across sites thus conservative process release estimates used. Typical technical measures are closed systems or scrubbers or charcoal adsorbers. Typical onsite offgas treatment technology provides removal efficiency of 90 %
Organisation measures to prevent/limit release from site	Common practices vary across sites thus conservative process release estimates used. Please use the Excel-Tool 'ECT Acetone' to check your local conditions.
Conditions and measures related to municipal sewage treatment plant	Please use the Excel-Tool 'ECT Acetone' to check your local conditions.
Conditions and measures related to external treatment of waste for disposal	External treatment and disposal of waste should comply with applicable regulations
Conditions and measures related to external recovery of waste	External treatment and disposal of waste should comply with applicable regulations
Other environmental control measures additional to above	none
Section 2.2	Control of worker exposure
	see chapter RM/Is
Section 3	Exposure Estimation
3.1. Health	GES Worker Chemical Safety Assessment (CSA) Template http://cefic.org/templates/shwPublications.asp?HID=750
3.2. Environment	ECT Acetone http://www.reachcentrum.eu/EN/consortium-management/consortia-under-reach/phenol-derivatives-reach-consortium.aspx
Section 4	Guidance to check compliance with the Exposure Scenario
4.1. Health	Guidance is based on assumed operating conditions which may not be applicable to all sites; thus, scaling may be necessary to define appropriate site-specific risk management measures.
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.

Generic Exposure Scenario:			Industrial Processes relevant for Acetone and Acetone containing products		Risk Management Measures (RMMs)	
No	Use Descriptor (PROCs)	SU 3 / SU 22	Contributing Scenario	Operational Conditions & typical RMMs	advised under REACH	
1	PROC 1 - Use in closed process, no likelihood of exposure	Industrial - SU3	General exposures (closed systems) [CS15].	(closed systems) [CS107]; Process sampling [CS2]. ;	Sample via a closed loop or other system to avoid exposure [E8]; Handle substance within a closed system [E47].	
2	PROC 2 - Use in closed, continuous process with occasional controlled exposure	Industrial - SU3	General exposures (closed systems) [CS15].	Continuous process [CS54]. ; Process sampling [CS2].	Sample via a closed loop or other system to avoid exposure [E8]; Handle substance within a closed system [E47].	
3	PROC 3 - Use in closed batch process (synthesis or formulation)	Industrial - SU3	General exposures (closed systems) [CS15].	Batch process [CS55]. Process sampling [CS2].	Sample via a closed loop or other system to avoid exposure [E8]; Handle substance within a closed system [E47].	
4	PROC 4 - Use in batch and other process (synthesis) where opportunity for exposure arises	Industrial - SU3	Process sampling [CS2]. ; (open systems) [CS108]			
5	PROC 5 - Mixing or blending in batch processes (multistage and/or significant contact)	Industrial - SU3	Mixing operations (open systems) [CS30].	Batch process [CS55]. Process sampling [CS2].		
6	PROC 6 - Calendaring operations	Industrial - SU3	Calendering (including Banburys) [CS64]			
7	PROC 7 - Industrial spraying	Industrial - SU3	Spraying/fogging by machine application [CS25].	with local exhaust ventilation [CS109]	Ensure material transfers are under containment or extract ventilation [E66].	
8	PROC 7 - Industrial spraying	Industrial - SU3	Spraying/fogging by machine application [CS25].		Ensure operation is undertaken outdoors [E69].	
9	PROC 7 - Industrial spraying	Industrial - SU3	Spraying/fogging by machine application [CS25].		Wear a respirator conforming to EN140 with Type A filter or better. [PPE22]	
10	PROC 8a - Transfer of chemicals from/to vessels/ large containers at non dedicated facilities	Industrial - SU3	Bulk transfers [CS14].	Non-dedicated facility [CS82]; Transfer from/pouring from containers [CS22].		
11	PROC 8b - Transfer of chemicals from/to vessels/ large containers at dedicated facilities	Industrial - SU3	Bulk transfers [CS14].	Dedicated facility [CS81]; Transfer from/pouring from containers [CS22].		

Generic Exposure Scenario:				Industrial Processes relevant for Acetone and Acetone containing products		Risk Management Measures (RMIMs)
No	Use Descriptor (PROCs)	SU 3 / SU 22	Contributing Scenario	Operational Conditions & typical RMIMs		
12	PROC 9 - Transfer of chemicals into small containers (dedicated filling line)	Industrial - SU3	Small package filling [CS7].	Dedicated facility [CS81]; Pouring from small containers [CS9].		advised under REACH
13	PROC 10 - Roller application or brushing	Industrial - SU3	Rolling, Brushing [CS51].	Or: Equipment cleaning and maintenance [CS39].		
14	PROC 10 - Roller application or brushing	Industrial - SU3	Equipment cleaning and maintenance [CS39].			
15	PROC 12 - Use of blow agents for foam production	Industrial - SU3	Foaming [CS132].	Production of foam-based objects [CS125].		
16	PROC 13 - Treatment of articles by dipping and pouring	Industrial - SU3	Dipping, immersion and pouring [CS4].			
17	PROC 14 - Production of preparations or articles by tableting, compression, extrusion, pelletisation	Industrial - SU3	Production or preparation of articles by tableting, compression, extrusion or pelletisation [CS100]			
18	PROC 15 - Use of laboratory reagents in small scale laboratories	Industrial - SU3	Laboratory activities [CS36].			
19	PROC 19 - Hand-mixing with intimate contact (only PPE available)	Industrial - SU3	Hand application - fingerpaints, pastels, adhesives [CS72]			Wear suitable gloves tested to EN374 [PPE15].

Generic Exposure Scenario:			Industrial Processes relevant for Acetone and Acetone containing products		Inhalation Exposure								
No	Use Descriptor (PROCs)	SU 3 / SU 22	Contributing Scenario	Operational Conditions & typical RMVs	TRA Predicted Exposure - (ppm) - no modifiers	TRA LEV : efficiency (%)	Dilution ventilation effectiveness (%)	TRA concentration factor	TRA duration factor	TRA RPE factor	Extra exposure modifier: (optional)	Free text - comment to clarify additional modifier (inhalation)	Predicted Exposure - (ppm) - modified
1	PROC 1 - Use in closed process, no likelihood of exposure	Industrial - SU3	General exposures (closed systems) [CS15].	(closed systems) [CS107]; Process sampling [CS2]. ;	0.01								0.01
2	PROC 2 - Use in closed, continuous process with occasional controlled exposure	Industrial - SU3	General exposures (closed systems) [CS15].	Continuous process [CS54]. ; Process sampling [CS2].	50.00								50
3	PROC 3 - Use in closed batch process (synthesis or formulation)	Industrial - SU3	General exposures (closed systems) [CS15].	Batch process [CS55]. Process sampling [CS2].	100.00								100
4	PROC 4 - Use in batch and other process (synthesis) where opportunity for exposure arises	Industrial - SU3	Process sampling [CS2]. ; (open systems) [CS108]		100.00								100
5	PROC 5 -Mixing or blending in batch processes (multistage and/or significant contact)	Industrial - SU3	Mixing operations (open systems) [CS30].	Batch process [CS55]. Process sampling [CS2].	250.00								250
	PROC 6 -Calendering operations	Industrial - SU3	Calendering (including Banburys) [CS64]		250.00								250
7	PROC 7 -Industrial spraying	Industrial - SU3	Spraying/fogging by machine application [CS25].	with local exhaust ventilation [CS109]	500.00	95.00							25
8	PROC 7 -Industrial spraying	Industrial - SU3	Spraying/fogging by machine application [CS25].		500.00		30.00						350
9	PROC 7 -Industrial spraying	Industrial - SU3	Spraying/fogging by machine application [CS25].		500.00					half mask			50
10	PROC 8a -Transfer of chemicals from/to vessels/ large containers at non dedicated facilities	Industrial - SU3	Bulk transfers [CS14].	Non-dedicated facility [CS82]; Transfer from/pouring from containers [CS22].	250.00								250
11	PROC 8b -Transfer of chemicals from/to vessels/ large containers at dedicated facilities	Industrial - SU3	Bulk transfers [CS14].	Dedicated facility [CS81]; Transfer from/pouring from containers [CS22].	150.00								150
12	PROC 9 -Transfer of chemicals into small containers (dedicated filling line)	Industrial - SU3	Small package filling [CS7].	Dedicated facility [CS81]; Pouring from small containers [CS9].	200.00								200
13	PROC 10 - Roller application or brushing	Industrial - SU3	Rolling, Brushing [CS51].	Or: Equipment cleaning and maintenance [CS39].	250.00								250

Generic Exposure Scenario:				Industrial Processes relevant for Acetone and Acetone containing products		Dermal Exposure						
No	Use Descriptor (PROCs)	SU 3 / SU 22	Contributing Scenario	Operational Conditions & typical RMMs	TRA Predicted Dermal exposure (mg/kg/d) - no modifiers	TRA Dermal exposure LEV reduction factor	TRA concentration factor	PPE factor	extra exposure modifier: [optional]	Free text - comment to clarify additional modifier (dermal)	Predicted Dermal Exposure (mg/kg/d) - modified	
1	PROC 1 - Use in closed process, no likelihood of exposure	Industrial - SU3	General exposures (closed systems) [CS15].	(closed systems) [CS107]; Process sampling [CS2]. ;	0.34						0.34	
2	PROC 2 - Use in closed, continuous process with occasional controlled exposure	Industrial - SU3	General exposures (closed systems) [CS15].	Continuous process [CS54]. ; Process sampling [CS2].	1.37						1.37	
3	PROC 3 - Use in closed batch process (synthesis or formulation)	Industrial - SU3	General exposures (closed systems) [CS15].	Batch process [CS55]. Process sampling [CS2].	0.34						0.34	
4	PROC 4 - Use in batch and other process (synthesis) where opportunity for exposure	Industrial - SU3	Process sampling [CS2]. ; (open systems) [CS108]		6.86						6.86	
5	PROC 5 -Mixing or blending in batch processes (multistage and/or significant contact)	Industrial - SU3	Mixing operations (open systems) [CS30].	Batch process [CS55]. Process sampling [CS2].	13.71						13.71	
6	PROC 6 -Calendering operations	Industrial - SU3	Calendering (including Banburys) [CS64]		27.43						27.43	
7	PROC 7 -Industrial spraying	Industrial - SU3	Spraying/fogging by machine application [CS25].	with local exhaust ventilation [CS109]	42.86	0.05					2.14	
8	PROC 7 -Industrial spraying	Industrial - SU3	Spraying/fogging by machine application [CS25].		42.86						42.86	
9	PROC 7 -Industrial spraying	Industrial - SU3	Spraying/fogging by machine application [CS25].		42.86						42.86	
10	PROC 8a -Transfer of chemicals from/to vessels/ large containers at non dedicated facilities	Industrial - SU3	Bulk transfers [CS14].	Non-dedicated facility [CS82]; Transfer from/pouring from containers [CS22].	13.71						13.71	
11	PROC 8b -Transfer of chemicals from/to vessels/ large containers at dedicated facilities	Industrial - SU3	Bulk transfers [CS14].	Dedicated facility [CS81]; Transfer from/pouring from containers [CS22].	6.86						6.86	
12	PROC 9 -Transfer of chemicals into small containers (dedicated filling line)	Industrial - SU3	Small package filling [CS7].	Dedicated facility [CS81]; Pouring from small containers [CS9].	6.86						6.86	

Generic Exposure Scenario:					Industrial Processes relevant for Acetone and Acetone containing products		Dermal Exposure					
No	Use Descriptor (PROCs)	SU 3 / SU 22	Contributing Scenario	Operational Conditions & typical RMMs	TRA Predicted Dermal exposure (mg/kg/d) - no modifiers	TRA Dermal exposure LEV reduction factor	TRA concentration factor	PPE factor	extra exposure modifier: [optional]	Free text - comment to clarify additional modifier (dermal)	Predicted Dermal Exposure (mg/kg/d) - modified	
13	PROC 10 - Roller application or brushing	Industrial - SU3	Rolling, Brushing [CS51].	Or: Equipment cleaning and maintenance [CS39].	27.43						27.43	
14	PROC 10 - Roller application or brushing	Industrial - SU3	Equipment cleaning and maintenance [CS39].		27.43						27.43	
15	PROC 12 - Use of blow agents for foam production	Industrial - SU3	Foaming [CS132].	Production of foam-based objects [CS125].	0.34						0.34	
16	PROC 13 -Treatment of articles by dipping and pouring	Industrial - SU3	Dipping, immersion and pouring [CS4].		13.71						13.71	
17	PROC 14 - Production of preparations or articles by tableting, compression, extrusion, pelletisation	Industrial - SU3	Production or preparation or articles by tableting, compression, extrusion or pelletisation [CS100]		0.34						0.34	
18	PROC 15 - Use of laboratory reagents in small scale laboratories	Industrial - SU3	Laboratory activities [CS36].		0.34						0.34	
19	PROC 19 - Hand-mixing with intimate contact (only PPE available)	Industrial - SU3	Hand application - fingerpaints, pastels, adhesives [CS72]		141.43			gloves			28.29	

Generic Exposure Scenario:			Industrial Processes relevant for Acetone and Acetone containing products		Risk Characterization		
No	Use Descriptor (PROCs)	SU 3 / SU 22	Contributing Scenario	Operational Conditions & typical RMMs	RCR (inhalation)	RCR (dermal)	RCR (all routes)
1	PROC 1 - Use in closed process, no likelihood of exposure	Industrial - SU3	General exposures (closed systems) [CS15].	(closed systems) [CS107]; Process sampling [CS2]. ;	0.00002	0.002	0.002
2	PROC 2 - Use in closed continuous process with occasional controlled exposure	Industrial - SU3	General exposures (closed systems) [CS15].	Continuous process [CS54]. ; Process sampling [CS2].	0.10	0.01	0.11
3	PROC 3 - Use in closed batch process (synthesis or formulation)	Industrial - SU3	General exposures (closed systems) [CS15].	Batch process [CS55]. Process sampling [CS2].	0.20	0.002	0.20
4	PROC 4 - Use in batch and other process (synthesis) where opportunity for exposure arises	Industrial - SU3	Process sampling [CS2]. ; (open systems) [CS108]		0.20	0.04	0.24
5	PROC 5 -Mixing or blending in batch processes (multistage and/or significant contact)	Industrial - SU3	Mixing operations (open systems) [CS30].	Batch process [CS55]. Process sampling [CS2].	0.50	0.07	0.57
6	PROC 6 -Calendering operations	Industrial - SU3	Calendering (including Banburys) [CS64]		0.50	0.15	0.65
7	PROC 7 -Industrial spraying	Industrial - SU3	Spraying/fogging by machine application [CS25].	with local exhaust ventilation [CS109]	0.05	0.01	0.06
8	PROC 7 -Industrial spraying	Industrial - SU3	Spraying/fogging by machine application [CS25].		0.70	0.23	0.93
9	PROC 7 -Industrial spraying	Industrial - SU3	Spraying/fogging by machine application [CS25].		0.10	0.23	0.33
10	PROC 8a -Transfer of chemicals from/to vessels/ large containers at non dedicated facilities	Industrial - SU3	Bulk transfers [CS14].	Non-dedicated facility [CS82]; Transfer from/pouring from containers [CS22].	0.50	0.07	0.57
11	PROC 8b -Transfer of chemicals from/to vessels/ large containers at dedicated facilities	Industrial - SU3	Bulk transfers [CS14].	Dedicated facility [CS81]; Transfer from/pouring from containers [CS22].	0.30	0.037	0.34

Generic Exposure Scenario:			Industrial Processes relevant for Acetone and Acetone containing products		Risk Characterization		
No	Use Descriptor (PROCs)	SU 3 / SU 22	Contributing Scenario	Operational Conditions & typical RMMs	RCR (inhalation)	RCR (dermal)	RCR (all routes)
12	PROC 9 - Transfer of chemicals into small containers (dedicated filling line)	Industrial - SU3	Small package filling [CS7].	Dedicated facility [CS81]; Pouring from small containers [CS9].	0.40	0.04	0.44
13	PROC 10 - Roller application or brushing	Industrial - SU3	Rolling, Brushing [CS51].	Or: Equipment cleaning and maintenance [CS39].	0.50	0.15	0.65
14	PROC 10 - Roller application or brushing	Industrial - SU3	Equipment cleaning and maintenance [CS39].		0.50	0.15	0.65
15	PROC 12 - Use of blow agents for foam production	Industrial - SU3	Foaming [CS132].	Production of foam-based objects [CS125].	0.20	0.00	0.20
16	PROC 13 - Treatment of articles by dipping and pouring	Industrial - SU3	Dipping, immersion and pouring [CS4].		0.50	0.074	0.57
17	PROC 14 - Production of preparations or articles by tableting, compression, extrusion, pelletisation	Industrial - SU3	Production or preparation of articles by tableting, compression, extrusion or pelletisation [CS100]		0.10	0.00	0.10
18	PROC 15 - Use of laboratory reagents in small scale laboratories	Industrial - SU3	Laboratory activities [CS36].		0.10	0.00	0.10
19	PROC 19 - Hand-mixing with intimate contact (only PPE available)	Industrial - SU3	Hand application - fingerpaints, pastels, adhesives [CS72]		0.50	0.15	0.65

Acetone - Professional

Identified Professional Generic Exposure Scenarios (GESs) of Acetone

GES No.	Subsector	Main SU	Description	PROC	ERC	Acetone
EC No.						200-662-2
CAS No.						67-64-1
1	Use in laboratories	All Professional Uses (SU22)	Use of small quantities within laboratory settings, including material transfers and equipment cleaning	PROC10, PROC15	ERC8a ERCs are to be checked with the ECT tool	x + PROC19
2	Uses in Coatings	All Professional Uses (SU22)	Covers the use in coatings (paints, inks, adhesives, etc) including exposures during use (including materials receipt, storage, preparation and transfer from bulk and semi-bulk, application by spray, roller, brush, spreader by hand or similar methods), and equipment cleaning, maintenance and associated laboratory activities.	PROC5, PROC8a, PROC10, PROC13	ERC8a, ERC8c, ERC8d, ERC8f ERCs are to be checked with the ECT tool	x + PROC1, PROC2, PROC3, PROC4, PROC8b, PROC9, PROC11, PROC15, PROC19
3	Use as binders and release agents	All Professional Uses (SU22)	Covers the use as binders and release agents including material transfers, mixing, application by spraying, brushing, and handling of waste.	PROC1, PROC2, PROC3, PROC4, PROC5, PROC6, PROC8a, PROC8b, PROC9, PROC10, PROC11	ERC8a, ERC8b, ERC8c, ERC8d, ERC8e, ERC8f ERCs are to be checked with the ECT tool	x
4	Polymer manufacturing	All Professional Uses (SU22)	Manufacturing of formulated polymers including material transfers, moulding and forming activities, material re-works and associated maintenance.	PROC8a	ERC8a, ERC8d, ERC8c, ERC8f ERCs are to be checked with the ECT tool	x + PROC1 PROC2 PROC8b PROC9 PROC14
5	Polymer processing	All Professional Uses (SU22)	Processing of formulated polymers including material transfers, moulding and forming activities, material re-works and associated maintenance.	PROC8a	ERC8a, ERC8d, ERC8c, ERC8f ERCs are to be checked with the ECT tool	x + PROC1 PROC2 PROC8b PROC9 PROC14
7	Use in Cleaning Agents	All Professional Uses (SU22)	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).	PROC1, PROC2, PROC3, PROC4, PROC5, PROC8a, PROC8b, PROC9, PROC10, PROC11, PROC13, PROC19	ERC8a ERCs are to be checked with the ECT tool	x + ERC8d

Acetone - Professional

GES No.	Subsector	Main SU	Description	PROC	ERC	Acetone
EC No.						200-662-2
CAS No.						67-64-1
8	Use in Oil field drilling and production operations	All Professional Uses (SU22)	Covers the use as a component of cleaning products including pouring/unloading from drums or containers	PROC1, PROC2, PROC3, PROC4, PROC8a, PROC8b	ERC8d ERCs are to be checked with the ECT tool	x
9	Agrochemical uses	All Professional Uses (SU22)	Use as an agrochemical excipient for application by manual or machine spraying, smokes and fogging; including equipment clean-downs and disposal.	PROC1, PROC2, PROC4, PROC8a, PROC8b, PROC11, PROC13, PROC19	ERC8a, ERC8d ERCs are to be checked with the ECT tool	x
10	De-icing and anti-icing applications	All Professional Uses (SU22)	Ice prevention and de-icing of vehicles, aircraft and other equipment by spraying	PROC1, PROC2, PROC8b, PROC11, PROC19	ERC8d ERCs are to be checked with the ECT tool	x
11	Explosives manufacture & use	All Professional Uses (SU22)	Covers exposures arising from the manufacture and use of slurry explosives (including materials transfer, mixing and charging) and equipment cleaning	PROC1, PROC3, PROC5, PROC8a, PROC8b	ERC8d ERCs are to be checked with the ECT tool	x

² Polymer Examples: FRP, UV, VE

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

Acetone - Professional

Identified Professional PROCs

PROC No.	Acetone
EC No.	200-662-2
CAS No.	67-64-1
PROC1	x
PROC2	x
PROC3	x
PROC4	x
PROC5	x
PROC6	x
PROC8a	x
PROC8b	x
PROC9	x
PROC10 (2 uses)	x
PROC11	x
PROC13	x
PROC14	x
PROC15	x
PROC19	x
Sum	15

Generic Exposure Scenario:

Substance specific information		Reference Values		
Substance		DNEL worker - inhalation (long term)	500	ppm
CASnr	67-64-1	DNEL worker - inhalation (short term)		ppm
Substance volatility:	233 hPa	DNEL worker - dermal (long term)	186	mg/kg/day
TRA volatility range	high			
physical property	liquid			
Section 1	Exposure Scenario Title			
Exposure Scenario	Main sector of Use: SU22 = All Professional Uses			
Processes, tasks, activities covered	All Professional Processes relevant for Acetone and Acetone containing products.			
Life Cycle Stage / Sector of Use	SU22 = All Professional Uses			
Applicable Use Descriptors (PROC or PC)	PROC1, PROC2, PROC3, PROC4, PROC5, PROC6, PROC8a, PROC8b, PROC9, PROC10, PROC11, PROC13, PROC15, PROC19			
Applicable Use Descriptors (ERC or SpERC)	ERCs and local conditions are to be checked with the Excel tool ECT Acetone			
Default Operational Conditions				
Product characteristics				
Acute Hazard	R phrases: 11-Highly flammable, 36-Irritating to eyes, 66-Repeated exposure may cause skin dryness or cracking, 67-Vapours may cause drowsiness and dizziness			
General measures	Locate bulk storage outdoors [E2] Use suitable eye protection [PPE26] If repeated and/or prolonged skin exposure to the substance is likely, then wear suitable gloves tested to EN374 and provide employee skin care programmes [PPE20] Provide a good standard of general ventilation. Natural ventilation is from doors, windows etc. Controlled ventilation means air is supplied or removed by a powered fan. [E1]			
concentration of substance in product	Covers percentage substance in the product up to 100 % (unless stated differently) [G13].			
physical form of product	Liquid, vapour pressure > 10 kPa [OC5].			
frequency and duration of use	Covers daily exposures up to 8 hours (unless stated differently) [G2]			
other Operational Conditions of use	Assumes a good basic standard of occupational hygiene is implemented [G1]. ;			

Section 2	Operational conditions and risk management measures
Section 2.1	Control of environmental exposure
Product characteristics	substance is a unique structure, ketone, readily biodegradable
Amounts used	Annual site tonnage (tonnes/year): please use the Excel-Tool 'ECT Acetone' to calculate your maximum tonnage/year
Frequency and duration of use	Emission Days (days/year): 360d/y
Other Operational Conditions of use affecting environmental exposure	Indoor/Outdoor use
Technical onsite conditions and measures to reduce or limit discharges, air emissions and releases to soil	Common practices vary across sites thus conservative process release estimates used. Typical technical measures are closed systems or scrubbers or charcoal adsorbers. Typical onsite offgas treatment technology provides removal efficiency of 90 %
Organisation measures to prevent/limit release from site	Common practices vary across sites thus conservative process release estimates used. Please use the Excel-Tool 'ECT Acetone' to check your local conditions.
Conditions and measures related to municipal sewage treatment plant	Please use the Excel-Tool 'ECT Acetone' to check your local conditions.
Conditions and measures related to external treatment of waste for disposal	External treatment and disposal of waste should comply with applicable regulations
Conditions and measures related to external recovery of waste	External treatment and disposal of waste should comply with applicable regulations
Other environmental control measures additional to above	none
Section 2.2	Control of worker exposure
	see chapter RM/Is
Section 3	Exposure Estimation
3.1. Health	GES Worker Chemical Safety Assessment (CSA) Template http://cefic.org/templates/shwPublications.asp?HID=750
3.2. Environment	ECT Acetone http://www.reachcentrum.eu/EN/consortium-management/consortia-under-reach/phenol-derivatives-reach-consortium.aspx
Section 4	Guidance to check compliance with the Exposure Scenario
4.1. Health	Guidance is based on assumed operating conditions which may not be applicable to all sites; thus, scaling may be necessary to define appropriate site-specific risk management measures.
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.

Generic Exposure Scenario:			Professional Processes relevant for Acetone and Acetone containing products		Risk Management Measures (RMMs)	
No	Use Descriptor (PROCs)	SU 3 / SU 22	Contributing Scenario	Operational Conditions & typical RMMs	advised under REACH	
1	PROC 1 - Use in closed process, no likelihood of exposure	Professional - SU22	General exposures (closed systems) [CS15].	(closed systems) [CS107]; Process sampling [CS2]. ;	Sample via a closed loop or other system to avoid exposure [E8] ; Handle substance within a closed system [E47].	
2	PROC 2 - Use in closed, continuous process with occasional controlled exposure	Professional - SU22	General exposures (closed systems) [CS15].	Continuous process [CS54]. ; Process sampling [CS2].	Sample via a closed loop or other system to avoid exposure [E8] ; Handle substance within a closed system [E47].	
3	PROC 3 - Use in closed batch process (synthesis or formulation)	Professional - SU22	General exposures (closed systems) [CS15].	Batch process [CS55]. Process sampling [CS2].	Sample via a closed loop or other system to avoid exposure [E8] ; Handle substance within a closed system [E47].	
4	PROC 4 - Use in batch and other process (synthesis) where opportunity for exposure arises	Professional - SU22	Process sampling [CS2]. ; (open systems) [CS108]			
5	PROC 5 -Mixing or blending in batch processes (multistage and/or significant contact)	Professional - SU22	Mixing operations (open systems) [CS30].	Batch process [CS55]. ; Process sampling [CS2]. ; with local exhaust ventilation [CS109]	Ensure material transfers are under containment or extract ventilation [E66].	
6	PROC 5 -Mixing or blending in batch processes (multistage and/or significant contact)	Professional - SU22	Mixing operations (open systems) [CS30].	Batch process [CS55]. Process sampling [CS2].	Ensure operation is undertaken outdoors [E69].	
7	PROC 5 -Mixing or blending in batch processes (multistage and/or significant contact)	Professional - SU22	Mixing operations (open systems) [CS30].	Batch process [CS55]. Process sampling [CS2].	Avoid carrying out activities involving exposure for more than 4 hours [28].	
8	PROC 6 -Calendering operations	Professional - SU22	Calendering (including Banburys) [CS64]; with local exhaust ventilation [CS109]		Ensure operation is undertaken outdoors [E69].	
9	PROC 6 -Calendering operations	Professional - SU22	Calendering (including Banburys) [CS64]		Ensure operation is undertaken outdoors [E69].	
10	PROC 6 -Calendering operations	Professional - SU22	Calendering (including Banburys) [CS64]		Avoid carrying out activities involving exposure for more than 4 hours [28].	
11	PROC 8a -Transfer of chemicals from/to vessels/ large containers at non dedicated facilities	Professional - SU22	Bulk transfers [CS14].	Non-dedicated facility [CS82]; Transfer from/pouring from containers [CS22]. ; with local exhaust ventilation [CS109]	Ensure material transfers are under containment or extract ventilation [E66].	

Generic Exposure Scenario:			Professional Processes relevant for Acetone and Acetone containing products		Risk Management Measures (RMMs)	
No	Use Descriptor (PROCs)	SU 3 / SU 22	Contributing Scenario	Operational Conditions & typical RMMs	advised under REACh	
12	PROC 8a -Transfer of chemicals from/to vessels/ large containers at non dedicated facilities	Professional - SU22	Bulk transfers [CS14].	Non-dedicated facility [CS82]; Transfer from/pouring from containers [CS22].	Ensure operation is undertaken outdoors [E69].	
13	PROC 8a -Transfer of chemicals from/to vessels/ large containers at non dedicated facilities	Professional - SU22	Bulk transfers [CS14].	Non-dedicated facility [CS82]; Transfer from/pouring from containers [CS22].	Avoid carrying out activities involving exposure for more than 4 hours [28].	
14	PROC 8b -Transfer of chemicals from/to vessels/ large containers at dedicated facilities	Professional - SU22	Bulk transfers [CS14].	Dedicated facility [CS81]; Transfer from/pouring from containers [CS22].		
15	PROC 9 -Transfer of chemicals into small containers (dedicated filling line)	Professional - SU22	Small package filling [CS7].	Dedicated facility [CS81]; Pouring from small containers [CS9].		
16	PROC 10 - Roller application or brushing	Professional - SU22	Rolling, Brushing [CS51].	Or: Equipment cleaning and maintenance [CS39]. ; with local exhaust ventilation [CS109]	Ensure material transfers are under containment or extract ventilation [E66].	
17	PROC 10 - Roller application or brushing	Professional - SU22	Rolling, Brushing [CS51].	Or: Equipment cleaning and maintenance [CS39].	Limit the substance content in the product to 25% [OC18].	
18	PROC 10 - Roller application or brushing	Professional - SU22	Rolling, Brushing [CS51].	Or: Equipment cleaning and maintenance [CS39].	Avoid carrying out activities involving exposure for more than 4 hours [28].	
19	PROC 11 - Non industrial spraying	Professional - SU22	Spraying/fogging by manual application [CS24].	with local exhaust ventilation [CS109]	Ensure material transfers are under containment or extract ventilation [E66].	
20	PROC 11 - Non industrial spraying	Professional - SU22	Spraying/fogging by manual application [CS24].		Limit the substance content in the product to 25% [OC18]. Ensure operation is undertaken outdoors [E69]. Avoid carrying out activities involving exposure for more than 4 hours [28].	
21	PROC 11 - Non industrial spraying	Professional - SU22	Spraying/fogging by manual application [CS24].		Avoid carrying out activities involving exposure for more than 1 hour [27].	
22	PROC 11 - Non industrial spraying	Professional - SU22	Spraying/fogging by manual application [CS24].		Wear a respirator conforming to EN140 with Type A filter or better. [PPE22]	

Generic Exposure Scenario:			Professional Processes relevant for Acetone and Acetone containing products		Risk Management Measures (RMMs)
No	Use Descriptor (PROCs)	SU 3 / SU 22	Contributing Scenario	Operational Conditions & typical RMMs	advised under REACH
23	PROC 13 - Treatment of articles by dipping and pouring	Professional - SU22	Dipping, immersion and pouring [CS4].		
24	PROC 14 - Production of preparations or articles by tableting, compression, extrusion, pelletisation	Professional - SU22	Production or preparation of articles by tableting, compression, extrusion or pelletisation [CS100]	with local exhaust ventilation [CS109]	Ensure material transfers are under containment or extract ventilation [E66].
25	PROC 14 - Production of preparations or articles by tableting, compression, extrusion, pelletisation	Professional - SU22	Production or preparation of articles by tableting, compression, extrusion or pelletisation [CS100]		Avoid carrying out activities involving exposure for more than 4 hours [28].
26	PROC 15 - Use of laboratory reagents in small scale laboratories	Professional - SU22	Laboratory activities [CS36].		
27	PROC 19 - Hand-mixing with intimate contact (only PPE available)	Professional - SU22	Hand application - fingerpaints, pastels, adhesives [CS72]		Limit the substance content in the product to 25% [OC18]. Wear suitable gloves tested to EN374 [PPE15].
28	PROC 19 - Hand-mixing with intimate contact (only PPE available)	Professional - SU22	Hand application - fingerpaints, pastels, adhesives [CS72]		Avoid carrying out activities involving exposure for more than 1 hour [27].

Generic Exposure Scenario:			Professional Processes relevant for Acetone and Acetone containing products		Inhalation Exposure								
No	Use Descriptor (PROCs)	SU 3 / SU 22	Contributing Scenario	Operational Conditions & typical RVMs	TRA Predicted Exposure - (ppm) - no modifiers	TRA LEV : efficiency (%)	Dilution ventilation effectiveness (%)	TRA concentration factor	TRA duration factor	TRA RPE factor	Extra exposure modifier: [optional]	Free text - comment to clarify additional modifier (inhalation)	Predicted Exposure - (ppm) - modified
1	PROC 1 - Use in closed process, no likelihood of exposure	Professional - SU22	General exposures (closed systems) [CS15].	(closed systems) [CS107]; Process sampling [CS2]. ;	0.01								0.01
2	PROC 2 - Use in closed, continuous process with occasional controlled exposure	Professional - SU22	General exposures (closed systems) [CS15].	Continuous process [CS54]. ; Process sampling [CS2].	50.00								50
3	PROC 3 - Use in closed batch process (synthesis or formulation)	Professional - SU22	General exposures (closed systems) [CS15].	Batch process [CS55]. Process sampling [CS2].	100.00								100
4	PROC 4 - Use in batch and other process (synthesis) where opportunity for exposure arises	Professional - SU22	Process sampling [CS2]. ; (open systems) [CS108]		250.00								250
5	PROC 5 -Mixing or blending in batch processes (multistage and/or significant contact)	Professional - SU22	Mixing operations (open systems) [CS30].	Batch process [CS55]. ; Process sampling [CS2]. ; with local exhaust ventilation [CS109]	500.00	80.00							100
6	PROC 5 -Mixing or blending in batch processes (multistage and/or significant contact)	Professional - SU22	Mixing operations (open systems) [CS30].	Batch process [CS55]. Process sampling [CS2].	500.00		30.00						350
7	PROC 5 -Mixing or blending in batch processes (multistage and/or significant contact)	Professional - SU22	Mixing operations (open systems) [CS30].	Batch process [CS55]. Process sampling [CS2].	500.00				1-4 hours				300
8	PROC 6 -Calendering operations	Professional - SU22	Calendering (including Banburys) [CS64]; with local exhaust ventilation [CS109]		600.00	80.00							420
9	PROC 6 -Calendering operations	Professional - SU22	Calendering (including Banburys) [CS64]		600.00		30.00						420
10	PROC 6 -Calendering operations	Professional - SU22	Calendering (including Banburys) [CS64]		600.00				1-4 hours				360
11	PROC 8a -Transfer of chemicals from/to vessels/ large containers at non dedicated facilities	Professional - SU22	Bulk transfers [CS14].	Non-dedicated facility [CS82]; Transfer from/pouring from containers [CS22]. ; with local exhaust ventilation [CS109]	500.00	80.00							100
12	PROC 8a -Transfer of chemicals from/to vessels/ large containers at non dedicated facilities	Professional - SU22	Bulk transfers [CS14].	Non-dedicated facility [CS82]; Transfer from/pouring from containers [CS22].	500.00		30.00						350
13	PROC 8a -Transfer of chemicals from/to vessels/ large containers at non dedicated facilities	Professional - SU22	Bulk transfers [CS14].	Non-dedicated facility [CS82]; Transfer from/pouring from containers [CS22].	500.00				1-4 hours				300

Generic Exposure Scenario:				Professional Processes relevant for Acetone and Acetone containing products		Inhalation Exposure							
No	Use Descriptor (PROCs)	SU 3 / SU 22	Contributing Scenario	Operational Conditions & typical RVMs	TRA Predicted Exposure - (ppm) - no modifiers	TRA LEV : efficiency (%)	Dilution ventilation effectiveness (%)	TRA concentration factor	TRA duration factor	TRA RPE factor	Extra exposure modifier: [optional]	Free text - comment to clarify additional modifier (inhalation)	Predicted Exposure - (ppm) - modified
14	PROC 8b -Transfer of chemicals from/to vessels/ large containers at dedicated facilities	Professional - SU22	Bulk transfers [CS14].	Dedicated facility [CS81]; Transfer from/pouring from containers [CS22].	250.00								250
15	PROC 9 -Transfer of chemicals into small containers (dedicated filling line)	Professional - SU22	Small package filling [CS7].	Dedicated facility [CS81]; Pouring from small containers [CS9].	250.00								250
16	PROC 10 - Roller application or brushing	Professional - SU22	Rolling, Brushing [CS51].	Or: Equipment cleaning and maintenance [CS39]. ; with local exhaust ventilation [CS109]	500.00	80.00							100
17	PROC 10 - Roller application or brushing	Professional - SU22	Rolling, Brushing [CS51].	Or: Equipment cleaning and maintenance [CS39].	500.00			5-25%					300
18	PROC 10 - Roller application or brushing	Professional - SU22	Rolling, Brushing [CS51].	Or: Equipment cleaning and maintenance [CS39].	500.00				1-4 hours				300
19	PROC 11 - Non industrial spraying	Professional - SU22	Spraying/fogging by manual application [CS24].	with local exhaust ventilation [CS109]	1000.00	80.00							200
20	PROC 11 - Non industrial spraying	Professional - SU22	Spraying/fogging by manual application [CS24].		1000.00		30.00	5-25%	1-4 hours				252
21	PROC 11 - Non industrial spraying	Professional - SU22	Spraying/fogging by manual application [CS24].		1000.00				15 min-1 hour				200
22	PROC 11 - Non industrial spraying	Professional - SU22	Spraying/fogging by manual application [CS24].		1000.00					half mask			100
23	PROC 13 -Treatment of articles by dipping and pouring	Professional - SU22	Dipping, immersion and pouring [CS4].		250.00								250
24	PROC 14 - Production of preparations or articles by tableting, compression, extrusion, pellettisation	Professional - SU22	Production or preparation or articles by tableting, compression, extrusion or pellettisation [CS100]	with local exhaust ventilation [CS109]	500.00	80.00							100
25	PROC 14 - Production of preparations or articles by tableting, compression, extrusion, pellettisation	Professional - SU22	Production or preparation or articles by tableting, compression, extrusion or pellettisation [CS100]		500.00				1-4 hours				300
26	PROC 15 - Use of laboratory reagents in small scale laboratories	Professional - SU22	Laboratory activities [CS36].		50.00								50

Generic Exposure Scenario:			Professional Processes relevant for Acetone and Acetone containing products		Inhalation Exposure								
No	Use Descriptor (PROCs)	SU 3 / SU 22	Contributing Scenario	Operational Conditions & typical RMMs	TRA Predicted Exposure - (ppm) - no modifiers	TRA LEV : efficiency (%)	Dilution ventilation effectiveness (%)	TRA concentration factor	TRA duration factor	TRA RPE factor	Extra exposure modifier: [optional]	Free text - comment to clarify additional modifier (inhalation)	Predicted Exposure - (ppm) - modified
27	PROC 19 - Hand-mixing with intimate contact (only PPE available)	Professional - SU22	Hand application - fingerpaints, pastels, adhesives [CS72]		500.00			5-25%					300
28	PROC 19 - Hand-mixing with intimate contact (only PPE available)	Professional - SU22	Hand application - fingerpaints, pastels, adhesives [CS72]		500.00				15 min-1 hour				100

Generic Exposure Scenario:				Professional Processes relevant for Acetone and Acetone containing products		Dermal Exposure					
No	Use Descriptor (PROCs)	SU 3 / SU 22	Contributing Scenario	Operational Conditions & typical RMMs	TRA Predicted Dermal exposure (mg/kg/d) - no modifiers	TRA Dermal exposure LEV/ reduction factor	TRA concentration factor	PPE factor	extra exposure modifier: [optional]	Free text - comment to clarify additional modifier (dermal)	Predicted Dermal Exposure (mg/kg/d) - modified
1	PROC 1 - Use in closed process, no likelihood of exposure	Professional - SU22	General exposures (closed systems) [CS15].	(closed systems) [CS107]; Process sampling [CS2]. ;	0.34						0.34
2	PROC 2 - Use in closed, continuous process with occasional controlled exposure	Professional - SU22	General exposures (closed systems) [CS15].	Continuous process [CS64]. ; Process sampling [CS2].	1.37						1.37
3	PROC 3 - Use in closed batch process (synthesis or formulation)	Professional - SU22	General exposures (closed systems) [CS15].	Batch process [CS55]. Process sampling [CS2].	0.34						0.34
4	PROC 4 - Use in batch and other process (synthesis) where opportunity for exposure	Professional - SU22	Process sampling [CS2]. ; (open systems) [CS108]		6.86						6.86
5	PROC 5 -Mixing or blending in batch processes (multistage and/or significant contact)	Professional - SU22	Mixing operations (open systems) [CS30].	Batch process [CS55]. ; Process sampling [CS2]. ; with local exhaust ventilation [CS109]	13.71	0.01					0.07
6	PROC 5 -Mixing or blending in batch processes (multistage and/or significant contact)	Professional - SU22	Mixing operations (open systems) [CS30].	Batch process [CS55]. Process sampling [CS2].	13.71						13.71
7	PROC 5 -Mixing or blending in batch processes (multistage and/or significant contact)	Professional - SU22	Mixing operations (open systems) [CS30].	Batch process [CS55]. Process sampling [CS2].	13.71						13.71
8	PROC 6 -Calendering operations	Professional - SU22	Calendering (including Banburys) [CS64]; with local exhaust ventilation [CS109]		27.43	0.05					27.43
9	PROC 6 -Calendering operations	Professional - SU22	Calendering (including Banburys) [CS64]		27.43						27.43
10	PROC 6 -Calendering operations	Professional - SU22	Calendering (including Banburys) [CS64]		27.43						27.43
11	PROC 8a -Transfer of chemicals from/to vessels/ large containers at non dedicated facilities	Professional - SU22	Bulk transfers [CS14].	Non-dedicated facility [CS82]; Transfer from/pouring from containers [CS22]. ; with local exhaust ventilation	13.71	0.01					0.14
12	PROC 8a -Transfer of chemicals from/to vessels/ large containers at non dedicated facilities	Professional - SU22	Bulk transfers [CS14].	Non-dedicated facility [CS82]; Transfer from/pouring from containers [CS22].	13.71						13.71

Generic Exposure Scenario:				Professional Processes relevant for Acetone and Acetone containing products		Dermal Exposure					
No	Use Descriptor (PROCs)	SU 3 / SU 22	Contributing Scenario	Operational Conditions & typical RMMs	TRA Predicted Dermal exposure (mg/kg/d) - no modifiers	TRA Dermal exposure LEV/ reduction factor	TRA concentration factor	PPE factor	extra exposure modifier: [optional]	Free text - comment to clarify additional modifier (dermal)	Predicted Dermal Exposure (mg/kg/d) - modified
13	PROC 8a -Transfer of chemicals from/to vessels/ large containers at non dedicated facilities	Professional - SU22	Bulk transfers [CS14].	Non-dedicated facility [CS82]; Transfer from/pouring from containers [CS22].	13.71						13.71
14	PROC 8b -Transfer of chemicals from/to vessels/ large containers at dedicated facilities	Professional - SU22	Bulk transfers [CS14].	Dedicated facility [CS81]; Transfer from/pouring from containers [CS22].	6.86						6.86
15	PROC 9 -Transfer of chemicals into small containers (dedicated filling line)	Professional - SU22	Small package filling [CS7].	Dedicated facility [CS81]; Pouring from small containers [CS9].	6.86						6.86
16	PROC 10 - Roller application or brushing	Professional - SU22	Rolling, Brushing [CS51].	Or: Equipment cleaning and maintenance [CS39] ; with local exhaust ventilation [CS109]	27.43	0.050					1.37
17	PROC 10 - Roller application or brushing	Professional - SU22	Rolling, Brushing [CS51].	Or: Equipment cleaning and maintenance [CS39].	27.43		5-25%				16.46
18	PROC 10 - Roller application or brushing	Professional - SU22	Rolling, Brushing [CS51].	Or: Equipment cleaning and maintenance [CS39].	27.43						27.43
19	PROC 11 - Non industrial spraying	Professional - SU22	Spraying/fogging by manual application [CS24].	with local exhaust ventilation [CS109]	107.14	0.02					2.14
20	PROC 11 - Non industrial spraying	Professional - SU22	Spraying/fogging by manual application [CS24].		107.14		5-25%				64.28
21	PROC 11 - Non industrial spraying	Professional - SU22	Spraying/fogging by manual application [CS24].		107.14						107.14
22	PROC 11 - Non industrial spraying	Professional - SU22	Spraying/fogging by manual application [CS24].		107.14						107.14
23	PROC 13 -Treatment of articles by dipping and pouring	Professional - SU22	Dipping, immersion and pouring [CS4].		13.71						13.71
24	PROC 14 - Production of preparations or articles by tableting, compression, extrusion, pelletisation	Professional - SU22	Production or preparation of articles by tableting, compression, extrusion or pelletisation [CS100]	with local exhaust ventilation [CS109]	3.43	0.10					0.34

Generic Exposure Scenario:			Professional Processes relevant for Acetone and Acetone containing products		Dermal Exposure						
No	Use Descriptor (PROCs)	SU 3 / SU 22	Contributing Scenario	Operational Conditions & typical RMMs	TRA Predicted Dermal exposure (mg/kg/d) - no modifiers	TRA Dermal exposure LEV reduction factor	TRA concentration factor	PPE factor	extra exposure modifier: [optional]	Free text - comment to clarify additional modifier (dermal)	Predicted Dermal Exposure (mg/kg/d) - modified
25	PROC 14 - Production of preparations or articles by tableting, compression, extrusion, pelletisation	Professional - SU22	Production or preparation of articles by tableting, compression, extrusion or pelletisation [CS100]		3.43						3.43
26	PROC 15 - Use of laboratory reagents in small scale laboratories	Professional - SU22	Laboratory activities [CS36]		0.34						0.34
27	PROC 19 - Hand-mixing with intimate contact (only PPE available)	Professional - SU22	Hand application - fingerprints, pastels, adhesives [CS72]		141.43		5-25%	gloves			16.97
28	PROC 19 - Hand-mixing with intimate contact (only PPE available)	Professional - SU22	Hand application - fingerprints, pastels, adhesives [CS72]		141.43						141.43

Generic Exposure Scenario:			Professional Processes relevant for Acetone and Acetone containing products		Risk Characterization		
No	Use Descriptor (PROCs)	SU 3 / SU 22	Contributing Scenario	Operational Conditions & typical RMIs	RCR (inhalation)	RCR (dermal)	RCR (all routes)
1	PROC 1 - Use in closed process, no likelihood of exposure	Professional - SU22	General exposures (closed systems) [CS15].	(closed systems) [CS107]; Process sampling [CS2]. ;	0.00002	0.002	0.002
2	PROC 2 - Use in closed, continuous process with occasional controlled exposure	Professional - SU22	General exposures (closed systems) [CS15].	Continuous process [CS54]. ; Process sampling [CS2].	0.10	0.01	0.11
3	PROC 3 - Use in closed batch process (synthesis or formulation)	Professional - SU22	General exposures (closed systems) [CS15].	Batch process [CS55]. Process sampling [CS2].	0.20	0.002	0.20
4	PROC 4 - Use in batch and other process (synthesis) where opportunity for exposure arises	Professional - SU22	Process sampling [CS2]. ; (open systems) [CS108]		0.50	0.04	0.54
5	PROC 5 -Mixing or blending in batch processes (multistage and/or significant contact)	Professional - SU22	Mixing operations (open systems) [CS30].	Batch process [CS55]. ; Process sampling [CS2]. ; with local exhaust ventilation [CS109]	0.20	0.00	0.20
6	PROC 5 -Mixing or blending in batch processes (multistage and/or significant contact)	Professional - SU22	Mixing operations (open systems) [CS30].	Batch process [CS55]. Process sampling [CS2].	0.70	0.07	0.77
7	PROC 5 -Mixing or blending in batch processes (multistage and/or significant contact)	Professional - SU22	Mixing operations (open systems) [CS30].	Batch process [CS55]. Process sampling [CS2].	0.60	0.07	0.67
8	PROC 6 -Calendering operations	Professional - SU22	Calendering (including Banburys) [CS64]; with local exhaust ventilation [CS109]		0.84	0.15	0.99
9	PROC 6 -Calendering operations	Professional - SU22	Calendering (including Banburys) [CS64]		0.84	0.15	0.99
10	PROC 6 -Calendering operations	Professional - SU22	Calendering (including Banburys) [CS64]		0.72	0.15	0.87
11	PROC 8a -Transfer of chemicals from/to vessels/ large containers at non dedicated facilities	Professional - SU22	Bulk transfers [CS14].	Non-dedicated facility [CS82]; Transfer from/pouring from containers [CS22]. ; with local exhaust ventilation [CS109]	0.20	0.001	0.20

Generic Exposure Scenario:				Professional Processes relevant for Acetone and Acetone containing products		Risk Characterization		
No	Use Descriptor (PROCs)	SU 3 / SU 22	Contributing Scenario	Operational Conditions & typical RMIs		RCR (inhalation)	RCR (dermal)	RCR (all routes)
12	PROC 8a - Transfer of chemicals from/to vessels/ large containers at non dedicated facilities	Professional - SU22	Bulk transfers [CS14].	Non-dedicated facility [CS82]; Transfer from/pouring from containers [CS22].		0.70	0.07	0.77
13	PROC 8a - Transfer of chemicals from/to vessels/ large containers at non dedicated facilities	Professional - SU22	Bulk transfers [CS14].	Non-dedicated facility [CS82]; Transfer from/pouring from containers [CS22].		0.60	0.07	0.67
14	PROC 8b - Transfer of chemicals from/to vessels/ large containers at dedicated facilities	Professional - SU22	Bulk transfers [CS14].	Dedicated facility [CS81]; Transfer from/pouring from containers [CS22].		0.50	0.04	0.54
15	PROC 9 - Transfer of chemicals into small containers (dedicated filling line)	Professional - SU22	Small package filling [CS7].	Dedicated facility [CS81]; Pouring from small containers [CS9].		0.50	0.04	0.54
16	PROC 10 - Roller application or brushing	Professional - SU22	Rolling, Brushing [CS51].	Or: Equipment cleaning and maintenance [CS39]. ; with local exhaust ventilation [CS109]		0.20	0.007	0.21
17	PROC 10 - Roller application or brushing	Professional - SU22	Rolling, Brushing [CS51].	Or: Equipment cleaning and maintenance [CS39].		0.60	0.09	0.69
18	PROC 10 - Roller application or brushing	Professional - SU22	Rolling, Brushing [CS51].	Or: Equipment cleaning and maintenance [CS39].		0.60	0.15	0.75
19	PROC 11 - Non industrial spraying	Professional - SU22	Spraying/fogging by manual application [CS24].	with local exhaust ventilation [CS109]		0.40	0.01	0.41
20	PROC 11 - Non industrial spraying	Professional - SU22	Spraying/fogging by manual application [CS24].			0.50	0.35	0.85
21	PROC 11 - Non industrial spraying	Professional - SU22	Spraying/fogging by manual application [CS24].			0.40	0.58	0.98
22	PROC 11 - Non industrial spraying	Professional - SU22	Spraying/fogging by manual application [CS24].			0.20	0.58	0.78

Generic Exposure Scenario:			Professional Processes relevant for Acetone and Acetone containing products		Risk Characterization		
No	Use Descriptor (PROCs)	SU 3 / SU 22	Contributing Scenario	Operational Conditions & typical RMMs	RCR (inhalation)	RCR (dermal)	RCR (all routes)
23	PROC 13 - Treatment of articles by dipping and pouring	Professional - SU22	Dipping, immersion and pouring [CS4].		0.50	0.07	0.57
24	PROC 14 - Production of preparations or articles by tableting, compression, extrusion, pelletisation	Professional - SU22	Production or preparation of articles by tableting, compression, extrusion or pelletisation [CS100]	with local exhaust ventilation [CS109]	0.20	0.002	0.20
25	PROC 14 - Production of preparations or articles by tableting, compression, extrusion, pelletisation	Professional - SU22	Production or preparation of articles by tableting, compression, extrusion or pelletisation [CS100]		0.60	0.02	0.62
26	PROC 15 - Use of laboratory reagents in small scale laboratories	Professional - SU22	Laboratory activities [CS36].		0.10	0.002	0.10
27	PROC 19 - Hand-mixing with intimate contact (only PPE available)	Professional - SU22	Hand application - fingerpaints, pastels, adhesives [CS72]		0.60	0.09	0.69
28	PROC 19 - Hand-mixing with intimate contact (only PPE available)	Professional - SU22	Hand application - fingerpaints, pastels, adhesives [CS72]		0.20	0.76	0.96

Identified Consumer Generic Exposure Scenarios (GESs) of Acetone

GES No. EC No. CAS No.	Subsector	Main SU	Description	PC
1	Uses in Coatings	All Consumer Uses (SU 21)	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.	PC1, PC4, PC5, PC9, PC10, PC15, PC24, PC31
2	Use in Cleaning Agents	All Consumer Uses (SU 21)	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.	PC3, PC4, PC9, PC24, PC32, PC35, PC38
3	De-icing and anti-icing applications	All Consumer Uses (SU 21)	De-icing of vehicles and similar equipment by spraying	PC4

Identified Consumer - PCs & Market Sector - PCs

	Acetone			
PC	Coatings	Cleanings	De-icing	PC type
PC1	x			Consumer
PC3		x		Consumer
PC4	x	x	x	Market Sector
PC9	x	x		Consumer
PC15	x			Market Sector
PC24	x	x		Consumer
PC31	x			Consumer
PC32		x		Market Sector
PC35		x		Consumer
PC38		x		Market Sector

Section 1		Exposure Scenario Title
Title		GES USES
Sector of Use (SU code)		21
Use Descriptor (PC codes)		PC LISTS
Processes, tasks, activities covered		DESCRIPTORS
Environmental Release Category		
Specific Environmental Release Category		
Section 2		Operational conditions and risk management measures
<i>Field for additional statements to explain scenario if required - pending better understanding from ECHA</i>		
Section 2.1		Control of consumer exposure
Product characteristics		
Physical form of product		Liquid
Vapour pressure		24000
Concentration of substance in product		Unless otherwise stated, cover concentrations up to 100% [ConsOC1]
Amounts used		Unless otherwise stated, covers use amounts up to 37500g [ConsOC2]; covers skin contact area up to 6600cm ² [ConsOC5]
Frequency and duration of use/exposure		Unless otherwise stated, covers use frequency up to 4 times per day [ConsOC4]; covers exposure up to 8 hours per event [ConsOC14]
Other Operational Conditions affecting exposure		Unless otherwise stated assumes use at ambient temperatures [ConsOC15]; assumes use in a 20m ³ room [ConsOC11]; assumes use with typical ventilation [ConsOC8];
Section 2.1.1		Product categories
PC1:Adhesives, sealants--Glues, hobby use	OC	Unless otherwise stated, covers concentrations up to 30% [ConsOC1]; covers use up to 365 days/year [ConsOC3]; covers use up to 1 time/6n day of use [ConsOC4]; covers skin contact area up to 35.73cm ² [ConsOC5]; for each use event, covers use amounts up to 9g [ConsOC2]; covers use under typical household ventilation [ConsOC8]; covers use in room size of 20m ³ [ConsOC11]; for each use event, covers exposure up to 4.00hr/event [ConsOC14];
PC1:Adhesives, sealants--Glues DIY-use (carpet glue, tile glue, wood parquet glue)	RMM	No specific RMMs identified beyond those OCs stated
	OC	Unless otherwise stated, covers concentrations up to 30% [ConsOC1]; covers use up to 1 days/year [ConsOC3]; covers use up to 1 time/6n day of use [ConsOC4]; covers skin contact area up to 11000cm ² [ConsOC5]; for each use event, covers use amounts up to 6390g [ConsOC2]; covers use under typical household ventilation [ConsOC8]; covers use in room size of 20m ³ [ConsOC11]; for each use event, covers exposure up to 6.00hr/event [ConsOC14];
	RMM	No specific RMMs identified beyond those OCs stated
PC1:Adhesives, sealants--Glue from spray	OC	Unless otherwise stated, covers concentrations up to 30% [ConsOC1]; covers use up to 6 days/year [ConsOC3]; covers use up to 1 time/6n day of use [ConsOC4]; covers skin contact area up to 35.73cm ² [ConsOC5]; for each use event, covers use amounts up to 85.05g [ConsOC2]; covers use under typical household ventilation [ConsOC8]; covers use in room size of 20m ³ [ConsOC11]; for each use event, covers exposure up to 4.00hr/event [ConsOC14];
	RMM	No specific RMMs identified beyond those OCs stated

Section 2.1.1		Product categories	
PC1:Adhesives, sealants--Sealants	OC	Unless otherwise stated, covers concentrations up to 30% [ConsOC1]; covers use up to 365 days/year[ConsOC3]; covers use up to 1 time/day of use[ConsOC4]; covers skin contact area up to 35.73 cm ² [ConsOC5]; for each use event, covers use amounts up to 75g [ConsOC2]; covers use under typical household ventilation [ConsOC8]; covers use in room size of 20m ³ [ConsOC11]; for each use event, covers exposure up to 1.00hr/event[ConsOC14];	
	RMM	No specific RMMs identified beyond those OCs stated	
PC3:Air care products--Air care, instant action (aerosol sprays)	OC	Unless otherwise stated, covers concentrations up to 50% [ConsOC1]; covers use up to 365 days/year[ConsOC3]; covers use up to 4 times/day of use[ConsOC4]; for each use event, covers use amounts up to 0.1g [ConsOC2]; covers use under typical household ventilation [ConsOC8]; covers use in room size of 20m ³ [ConsOC11]; for each use event, covers exposure up to 0.25hr/event[ConsOC14];	
	RMM	No specific RMMs identified beyond those OCs stated	
PC3:Air care products--Air care, continuous action (solid and liquid)	OC	Unless otherwise stated, covers concentrations up to 10% [ConsOC1]; covers use up to 365 days/year[ConsOC3]; covers use up to 1 time/day of use[ConsOC4]; covers skin contact area up to 35.70 cm ² [ConsOC5]; for each use event, covers use amounts up to 0.48g [ConsOC2]; covers use under typical household ventilation [ConsOC8]; covers use in room size of 20m ³ [ConsOC11]; for each use event, covers exposure up to 8.00hr/event[ConsOC14];	
	RMM	No specific RMMs identified beyond those OCs stated	
PC4_n:Anti-freeze and de-icing products--Washing car window	OC	Unless otherwise stated, covers concentrations up to 1% [ConsOC1]; covers use up to 365 days/year[ConsOC3]; covers use up to 1 time/day of use[ConsOC4]; for each use event, covers use amounts up to 0.5g [ConsOC2]; Covers use in a one car garage (34m ³) under typical ventilation [ConsOC10]; covers use in room size of 34m ³ [ConsOC11]; for each use event, covers exposure up to 0.02hr/event[ConsOC14];	
	RMM	No specific RMMs identified beyond those OCs stated	
PC4_n:Anti-freeze and de-icing products--Pouring into radiator	OC	Unless otherwise stated, covers concentrations up to 10% [ConsOC1]; covers use up to 365 days/year[ConsOC3]; covers use up to 1 time/day of use[ConsOC4]; covers skin contact area up to 428.00 cm ² [ConsOC5]; for each use event, covers use amounts up to 200g [ConsOC2]; Covers use in a one car garage (34m ³) under typical ventilation [ConsOC10]; covers use in room size of 34m ³ [ConsOC11]; for each use event, covers exposure up to 0.17hr/event[ConsOC14];	
	RMM	No specific RMMs identified beyond those OCs stated	
PC4_n:Anti-freeze and de-icing products--Lock de-icer	OC	Unless otherwise stated, covers concentrations up to 50% [ConsOC1]; covers use up to 365 days/year[ConsOC3]; covers use up to 1 time/day of use[ConsOC4]; covers skin contact area up to 214.40 cm ² [ConsOC5]; for each use event, covers use amounts up to 4g [ConsOC2]; Covers use in a one car garage (34m ³) under typical ventilation [ConsOC10]; covers use in room size of 34m ³ [ConsOC11]; for each use event, covers exposure up to 0.25hr/event[ConsOC14];	
	RMM	No specific RMMs identified beyond those OCs stated	
PC9a:Coatings and paints, fillers putties, thinners--Waterborne latex wall paint	OC	Unless otherwise stated, covers concentrations up to 1.5% [ConsOC1]; covers use up to 4 days/year[ConsOC3]; covers use up to 1 time/day of use[ConsOC4]; covers skin contact area up to 428.75 cm ² [ConsOC5]; for each use event, covers use amounts up to 2760g [ConsOC2]; covers use under typical household ventilation [ConsOC8]; covers use in room size of 20m ³ [ConsOC11]; for each use event, covers exposure up to 2.20hr/event[ConsOC14];	
	RMM	No specific RMMs identified beyond those OCs stated	
PC9a:Coatings and paints, fillers putties, thinners--Solvent rich, high solid, water borne paint	OC	Unless otherwise stated, covers concentrations up to 27.5% [ConsOC1]; covers use up to 6 days/year[ConsOC3]; covers use up to 1 time/day of use[ConsOC4]; covers skin contact area up to 428.75 cm ² [ConsOC5]; for each use event, covers use amounts up to 744g [ConsOC2]; covers use under typical household ventilation [ConsOC8]; covers use in room size of 20m ³ [ConsOC11]; for each use event, covers exposure up to 2.20hr/event[ConsOC14];	
	RMM	No specific RMMs identified beyond those OCs stated	

Section 2.1.1		Product categories
PC9a:Coatings and paints, fillers putties, thinners-- Aerosol spray can	OC	Unless otherwise stated, covers concentrations up to 50% [ConsOC1]; covers use up to 2 days/year[ConsOC3]; covers use up to 1 time/6n day of use[ConsOC4]; for each use event, covers use amounts up to 215g [ConsOC2]; Covers use in a one car garage (34m3) under typical ventilation [ConsOC10]; covers use in room size of 34m3[ConsOC11]; for each use event, covers exposure up to 0.33hr/event[ConsOC14];
	RMM	No specific RMMs identified beyond those OCs stated
PC9a:Coatings and paints, fillers putties, thinners-- Removers (paint-, glue-, wall paper-, sealant-remover)	OC	Unless otherwise stated, covers concentrations up to 50% [ConsOC1]; covers use up to 3 days/year[ConsOC3]; covers use up to 1 time/6n day of use[ConsOC4]; covers skin contact area up to 857.50cm2 [ConsOC5]; for each use event, covers use amounts up to 491g [ConsOC2]; covers use under typical household ventilation [ConsOC8]; covers use in room size of 20m3[ConsOC11]; for each use event, covers exposure up to 2.00hr/event[ConsOC14];
	RMM	No specific RMMs identified beyond those OCs stated
PC9b:Fillers, putties, plasters, modeling clay-- Fillers and putty	OC	Unless otherwise stated, covers concentrations up to 2% [ConsOC1]; covers use up to 12 days/year[ConsOC3]; covers use up to 1 time/6n day of use[ConsOC4]; covers skin contact area up to 35.73cm2 [ConsOC5]; for each use event, covers use amounts up to 85g [ConsOC2]; covers use under typical household ventilation [ConsOC8]; covers use in room size of 20m3[ConsOC11]; for each use event, covers exposure up to 4.00hr/event[ConsOC14];
	RMM	No specific RMMs identified beyond those OCs stated
PC9b:Fillers, putties, plasters, modeling clay-- Plasters and floor equalizers	OC	Unless otherwise stated, covers concentrations up to 2% [ConsOC1]; covers use up to 12 days/year[ConsOC3]; covers use up to 1 time/6n day of use[ConsOC4]; covers skin contact area up to 857.50cm2 [ConsOC5]; for each use event, covers use amounts up to 1380g [ConsOC2]; covers use under typical household ventilation [ConsOC8]; covers use in room size of 20m3[ConsOC11]; for each use event, covers exposure up to 2.00hr/event[ConsOC14];
	RMM	No specific RMMs identified beyond those OCs stated
PC9b:Fillers, putties, plasters, modeling clay-- Modelling clay	OC	Unless otherwise stated, covers concentrations up to 1% [ConsOC1]; covers use up to 365 days/year[ConsOC3]; covers use up to 1 time/6n day of use[ConsOC4]; covers skin contact area up to 254.40cm2 [ConsOC5]; for each use event, assumes swallowed amount of 1g [ConsOC13];
	RMM	No specific RMMs identified beyond those OCs stated
PC9c:Finger paints --Finger paints	OC	Unless otherwise stated, covers concentrations up to 50% [ConsOC1]; covers use up to 365 days/year[ConsOC3]; covers use up to 1 time/6n day of use[ConsOC4]; covers skin contact area up to 254.40cm2 [ConsOC5]; for each use event, assumes swallowed amount of 1.35g [ConsOC13];
	RMM	Avoid using at a product concentration greater than 5% [ConsRMM1];
PC15.n: Non-metal surface treatment products-- Solvent rich, high solid, water borne paint	OC	Unless otherwise stated, covers concentrations up to 27.5% [ConsOC1]; covers use up to 6 days/year[ConsOC3]; covers use up to 1 time/6n day of use[ConsOC4]; covers skin contact area up to 428.75cm2 [ConsOC5]; for each use event, covers use amounts up to 744g [ConsOC2]; covers use under typical household ventilation [ConsOC8]; covers use in room size of 20m3[ConsOC11]; for each use event, covers exposure up to 2.20hr/event[ConsOC14];
	RMM	No specific RMMs identified beyond those OCs stated
PC15.n: Non-metal surface treatment products-- Aerosol spray can	OC	Unless otherwise stated, covers concentrations up to 50% [ConsOC1]; covers use up to 2 days/year[ConsOC3]; covers use up to 1 time/6n day of use[ConsOC4]; for each use event, covers use amounts up to 215g [ConsOC2]; Covers use in a one car garage (34m3) under typical ventilation [ConsOC10]; covers use in room size of 34m3[ConsOC11]; for each use event, covers exposure up to 0.33hr/event[ConsOC14];
	RMM	No specific RMMs identified beyond those OCs stated
PC15.n: Non-metal surface treatment products-- Removers (paint-, glue-, wall paper-, sealant-remover)	OC	Unless otherwise stated, covers concentrations up to 50% [ConsOC1]; covers use up to 3 days/year[ConsOC3]; covers use up to 1 time/6n day of use[ConsOC4]; covers skin contact area up to 857.50cm2 [ConsOC5]; for each use event, covers use amounts up to 491g [ConsOC2]; covers use under typical household ventilation [ConsOC8]; covers use in room size of 20m3[ConsOC11]; for each use event, covers exposure up to 2.00hr/event[ConsOC14];
	RMM	No specific RMMs identified beyond those OCs stated

Section 2.1.1		Product categories	
PC-24 Lubricants, greases, and release products--Liquids	OC	Unless otherwise stated, covers concentrations up to 100% [ConsOC1]; covers use up to 4 days/year [ConsOC3]; covers use up to 1 time/day of use [ConsOC4]; covers skin contact area up to 468.00 cm ² [ConsOC5]; for each use event, covers use amounts up to 2200g [ConsOC2]; Covers use in a one car garage (34m ³) under typical ventilation [ConsOC10]; covers use in room size of 34m ³ [ConsOC11]; for each use event, covers exposure up to 0.17hr/event [ConsOC14];	
	RMM		
PC-24 Lubricants, greases, and release products--Pastes	OC	Unless otherwise stated, covers concentrations up to 20% [ConsOC1]; covers use up to 10 days/year [ConsOC3]; covers use up to 1 time/day of use [ConsOC4]; covers skin contact area up to 468.00 cm ² [ConsOC5]; for each use event, covers use amounts up to 34g [ConsOC2]; covers use in room size of m ³ [ConsOC11];	
	RMM	No specific RMMs identified beyond those OCs stated	
PC-24 Lubricants, greases, and release products--Sprays	OC	Unless otherwise stated, covers concentrations up to 50% [ConsOC1]; covers use up to 6 days/year [ConsOC3]; covers use up to 1 time/day of use [ConsOC4]; covers skin contact area up to 428.75 cm ² [ConsOC5]; for each use event, covers use amounts up to 73g [ConsOC2]; covers use under typical household ventilation [ConsOC8]; covers use in room size of 20m ³ [ConsOC11]; for each use event, covers exposure up to 0.17hr/event [ConsOC14];	
	RMM	No specific RMMs identified beyond those OCs stated	
PC-31: Polishes and wax blends--Polishes, wax / cream (floor, furniture, shoes)	OC	Unless otherwise stated, covers concentrations up to 50% [ConsOC1]; covers use up to 29 days/year [ConsOC3]; covers use up to 1 time/day of use [ConsOC4]; covers skin contact area up to 430.00 cm ² [ConsOC5]; for each use event, covers use amounts up to 142g [ConsOC2]; covers use under typical household ventilation [ConsOC8]; covers use in room size of 20m ³ [ConsOC11]; for each use event, covers exposure up to 1.23hr/event [ConsOC14];	
	RMM	No specific RMMs identified beyond those OCs stated	
PC-31: Polishes and wax blends--Polishes, spray (furniture, shoes)	OC	Unless otherwise stated, covers concentrations up to 50% [ConsOC1]; covers use up to 8 days/year [ConsOC3]; covers use up to 1 time/day of use [ConsOC4]; covers skin contact area up to 430.00 cm ² [ConsOC5]; for each use event, covers use amounts up to 35g [ConsOC2]; covers use under typical household ventilation [ConsOC8]; covers use in room size of 20m ³ [ConsOC11]; for each use event, covers exposure up to 0.33hr/event [ConsOC14];	
	RMM	No specific RMMs identified beyond those OCs stated	
PC-35: Washing and cleaning products (including solvent based products)--Laundry and dish washing products	OC	Unless otherwise stated, covers concentrations up to 5% [ConsOC1]; covers use up to 365 days/year [ConsOC3]; covers use up to 1 time/day of use [ConsOC4]; covers skin contact area up to 857.50 cm ² [ConsOC5]; for each use event, covers use amounts up to 15g [ConsOC2]; covers use under typical household ventilation [ConsOC8]; covers use in room size of 20m ³ [ConsOC11]; for each use event, covers exposure up to 0.50hr/event [ConsOC14];	
	RMM	No specific RMMs identified beyond those OCs stated	
PC-35: Washing and cleaning products (including solvent based products)--Cleaners, liquids (all purpose cleaners, sanitary products, floor cleaners, glass cleaners, carpet cleaners, metal cleaners)	OC	Unless otherwise stated, covers concentrations up to 5% [ConsOC1]; covers use up to 128 days/year [ConsOC3]; covers use up to 1 time/day of use [ConsOC4]; covers skin contact area up to 857.50 cm ² [ConsOC5]; for each use event, covers use amounts up to 27g [ConsOC2]; covers use under typical household ventilation [ConsOC8]; covers use in room size of 20m ³ [ConsOC11]; for each use event, covers exposure up to 0.33hr/event [ConsOC14];	
	RMM	No specific RMMs identified beyond those OCs stated	
PC-35: Washing and cleaning products (including solvent based products)--Cleaners, trigger sprays (all purpose cleaners, sanitary products, glass cleaners)	OC	Unless otherwise stated, covers concentrations up to 15% [ConsOC1]; covers use up to 128 days/year [ConsOC3]; covers use up to 1 time/day of use [ConsOC4]; covers skin contact area up to 428.00 cm ² [ConsOC5]; for each use event, covers use amounts up to 35g [ConsOC2]; covers use under typical household ventilation [ConsOC8]; covers use in room size of 20m ³ [ConsOC11]; for each use event, covers exposure up to 0.17hr/event [ConsOC14];	
	RMM	No specific RMMs identified beyond those OCs stated	

Section 2.1.1		Product categories	
PC 38_n: Welding and soldering products, flux products--NOTE, n_assessment not in TRA	OC	Unless otherwise stated, covers concentrations up to 20% [ConsOC1]; covers use up to 365 days/year [ConsOC3]; covers use up to 1 time on day of use [ConsOC4]; for each use event, covers use amounts up to 12g [ConsOC2]; covers use under typical household ventilation [ConsOC8]; covers use in room size of 20m³ [ConsOC11]; for each use event, covers exposure up to 1.00hr/event [ConsOC14];	
	RMM	No specific RMMs identified beyond those OCs stated	
Section 3		Exposure Estimation ('Flexible' heading)	
ECHA Note in draft template: Exposure estimation and risk characterisation ratios (for all routes of exposure for consumers and all compartments for environment) resulting from the conditions described under Sections 2.1 and 2.2), and the substance properties; make reference to the exposure assessment tool applied. Note: Detail could be confusing for customers. Also may be an extensive list. Proposal to include a weblink from where these data can be retrieved (a component of GES development).			
3.1. Health			
Health sub-headings (design as phrases)		Standard phrases expected. Ability to include a web link.	
3.2. Environment			
Environment sub-headings (design as phrases)		Standard phrases expected. Ability to include a web link.	
Section 4		Guidance to check compliance with the Exposure Scenario ('Flexible' heading)	
Guidance how the DU can evaluate whether he operates within the conditions set in the exposure scenario - scaling tools, Standard phrases			
4.1. Health			
Health sub-headings (design as phrases)		Utilize TRA, TRA+ and/or CONSEXPO exposure model	
4.2. Environment			
Environment sub-headings (design as phrases)		Standard phrases	

Qualitative Environmental Exposure Assessment

ACETONE

CAS No: 67-64-1

EINECS No: 200-662-2

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1. Environmental Exposure

1.1 General discussion

Acetone is released from a number of both human-made as well as natural sources. Man-made releases are quite small compared to natural sources of acetone in the environment. Releases to the environment by producers, processors and users of acetone have been estimated to represent only about 1-2 percent of total annual environmental loading. Approximately 97 percent of annual environmental loading come from natural sources (vegetative releases, forest fires and other natural sources) and the photo-oxidation of alkanes and alkenes (OECD 1999, VCCEP 2003).

The purpose of this chapter is to reflect qualitatively the exposure situation in the EU that results from industrial sources of acetone production and processing. As far as exposure of the environment is concerned, the diffuse emissions of acetone from natural sources by far exceed the industrial emissions.

In the appendix predefined environmental exposure scenarios are attached to this document. These enable downstream users of acetone to check and reflect their specific exposure situation in regard to surface-water and soil release and to determine their conditions for a safe use as well as their acceptable use volumes. Reference is given to an according tool, that is enclosed in the registration dossier as an attached document (ECT_Acetone_19Jul2010.xls) and may be downloaded from the P&D REACH Consortium-website or the web-site of the consortium members.

1.2 Production

Worldwide production capacity of acetone was 3.8 million tonnes in 1995 with the actual volume produced being somewhat less at 3.7 million tonnes. Production capacity in the United States constituted about 33% (1.3 million tonnes) of the global capacity, while the capacity in Western Europe and Asia (including Japan) was about 31% (1.2 million tonnes) and 19% (0.7 Mio tonnes), respectively. For 2008, the CMAI Capacity Database reports a total supply of approx. 5 Mio tonnes worldwide and 1.5 Mio in Western Europe (CMAI, 2010).

Acetone can be manufactured by several routes: (a) as a co-product of phenol via cumene peroxidation, (b) via dehydrogenation of isopropyl alcohol, (c) as a byproduct of hydroquinone production, and (d) as a byproduct of propylene oxide production. The predominant route to production of acetone is the cumene peroxidation process. In this process, benzene is alkylated to cumene which is oxidized to cumene hydroperoxide, which in turn is cleaved to phenol and acetone. Distillation columns are employed to attain desired purity, which is typically greater than 99% for the final product. The processes and equipment for manufacture, transfer and storage are all continuous and enclosed. Equipment and tanks are customarily vented to water scrubbers or through conservation vents to prevent atmospheric loss via evaporation. These practices keep environmental acetone losses during production to a minimum (VCCEP 2003).

The release of acetone by chemical manufacturers' and end users accounts for a very small percentage (1%) of the estimated 40 million tonnes that are annually released to the environment (OECD 1999).

1.3 Uses

Acetone is one of the most widely used industrial solvents. Acetone is used in surface coatings, cleaning fluids, pharmaceutical and cosmetic applications, adhesives and numerous other consumer and commercial products. It also is sold in small containers (e.g., one liter) via various sales channels. Acetone is used in the extraction of fats, oils, waxes and resins from natural products, as a denaturant for ethyl alcohol, and as acetylene absorbent. Acetone is used in the manufacture of cellulose acetate fibers. Acetone also is widely used as a chemical intermediate. Numerous chemicals are produced starting with the self-condensation of acetone to diacetone alcohol, including methyl isobutyl ketone, methyl isobutyl carbinol, hexylene glycol, and isophorone. For 2008, the CMAI Capacity Database (CMAI, 2010) allocates the total supply of acetone to the main industrial sectors of use as follows:

Demand	World	Western Europe
	[approx. percent of supply]	
Bisphenol A	22	18
MMA	23	25
Other chemical derivatives	13	11
Solvents	41	33

1.4 Natural and further releases into the environment

Man-made releases are small compared to natural sources of acetone in the environment. Releases to the environment by producers, processors and users of acetone have been estimated to represent only about 1-2 percent of total annual environmental loading. Approximately 97 percent of annual environmental loading comes from natural sources (vegetative releases, forest fires and other natural sources) and the photo-oxidation of alkanes and alkenes. The remainder comes from anthropogenic biomass burning (VCCEP 2003). According to OECD (1999) the release of acetone by chemical manufacturers' and end users accounts for a very small percentage (1%) of the estimated 40 million tonnes that are annually released to the environment.

Atmosphere

Vegetative releases

Acetone was found to be a product of metabolism in microorganisms, plants and animals. The compound is formed during fermentation by *Clostridiaceae*. In animals, acetone is formed together with acetyl acetic acid and β -hydroxybutyric acid, predominantly during fatty acid metabolism. The compound was measured in human fluids in concentrations of 0.31 – 3.03 mg/L in urine, 0.93 mg/L in blood, 2.9 mg/L in serum, and 0.41 – 4.35 mg/L in plasma (BUA 1996).

Acetone can be found as an ingredient in a variety of consumer products ranging from cosmetics to processed and unprocessed foods. The compound is present in beverages, baked goods, deserts, and preserves at concentrations ranging from 5 to 8 mg/L. It can also be detected in measurable amounts in onions, grapes, cauliflower, tomatoes, milk, cheese, beans, peas, and other natural foods. Milk from dairy cattle may contain very high levels of acetone, ranging as high as 225 mg/L for the milk from hyperketo-nemic cows. Acetone has also been identified, but not quantified, in air samples from numerous plants and microorganisms. In

addition to its elimination in the expired air of all mammals, acetone is excreted as a metabolic end-product by some bacteria (*Clostridium butylicum*), molds, fungi (*Paecilomyces variotii*), and algae (*Cryptomonas ovate palustris*) (OECD 1999).

Vegetative releases, forest fires, and other natural events account for nearly half (47%) of the estimated annual emissions of acetone. The global release by vegetation was estimated to 4 – 18 Mio. t/a (average 9 Mio t/a) (OECD 1999). No release amounts for microorganisms or animals could be identified. Releases into the environment within the EU were not located in the literature.

A rough estimation of European releases can be performed taken into account the continental and the global land area. The global land area is 148,9 Mio. km², while the area of the European Union is 4.3 Mio. km² (Wikipedia 2010), i.e. 2.9% of global. Assuming that the acetone emission by vegetation is equally distributed over the earth, 261,000 t acetone/a ($2.9\% \cdot 9 \text{ Mio. t/a}$) would be released from vegetative sources in Europe.

Biomass burning

Acetone is often detected as an end product of thermal combustion and biological decomposition. Emissions from poultry manure (530 g/kg), backyard waste incinerators (4.0 g/kg), pine wood combustion (2.8 g/kg), neoprene combustion (990 mg/kg), and wood burning stoves (145 mg/kg) have all been measured and reported (OECD 1999).

The global release by biomass burning was estimated to 8 – 12 Mio. t/a (average 10 Mio t/a) (OECD 1999). Releases into the environment within the EU were not located in the literature.

A rough estimation of European releases can be performed taken into account the continental and the global land area (see above). Assuming that the acetone emission by biomass burning is equally distributed over the earth, 290,000 t acetone/a ($2.9\% \cdot 10 \text{ Mio. t/a}$) would be released in Europe from biomass burning.

Photooxidation of alkanes and alkenes

Acetone is formed by photo-oxidation of alkanes, e.g. from vehicle exhaust (BUA 1996).

About 50% of the total emissions result from the tropospheric photooxidation of propane and other alkanes and alkenes. The following global sources are reported: propane oxidation 15 – 20 Mio. t/a (average 17 Mio t/a), isobutane & isopropane oxidation 1 – 3 Mio. t/a (average 2 Mio t/a), isobutene & isopropene oxidation 1 – 2 Mio. t/a (average 1 Mio t/a), and myrcene oxidation 0.2 – 0.3 Mio. t/a (average 0.2 Mio t/a). The average global release due to these sources is 20.2 Mio t/a (OECD 1999).

The release estimation in OECD (1999) was based on data from the 1990ies. Recent investigations demonstrate that the emissions from vehicle exhaust decreased significantly in the last decade. According to LUBW (2010) benzene concentrations measured at traffic monitoring stations dropped from ca. 10.7 µg/m³ in 1996 to 2.3 µg/m³ in 2008. Similar results were published in UBA (2010): benzene concentrations measured in urban traffic areas decreased from 7.9 µg/m³ in 1997 to 2.1 µg/m³ in 2007, while urban background concentrations decreased from 2.8 µg/m³ to 1.0 µg/m³ in the same period. In the same period industrial hydrocarbon emissions decreased drastically. Therefore, acetone emissions estimated in OECD (1999) could overestimate the current situation. Furthermore, only a part of the global release is emitted within the European Union. For the exposure estimation it is assumed that approximately 10% of the reported amount (= 2.02 Mio. t/a) is released within the EU.

2. Environmental distribution and behaviour

2.1 Distribution

Deduced as a weight of evidence from the physicochemical data (miscibility with water in all proportions, $\log P_{ow} = -0.24$) acetone should not adsorb onto soils. Data for soil sorption are quoted in a reliable scientific study. Soil sorption K_d was 1.5 L/kg, at 20 °C. The soil sorption coefficient indicates that acetone is mobile in soil and may be transported by soil water (Roy W, Griffin R 1990).

Several reliable experimental studies and further reported values for the Henry's Law constant are available. According to reliable experimental studies (bubble column technique) the Henry's Law constant was determined to 2.929 Pa m³ mol⁻¹ (Zhou X, Mopper K 1990) and 3.070 Pa m³ mol⁻¹ at 25 °C (Betterton E 1991), indicating a moderate volatility from water. The Henry's law constant for sea water was determined to 3.311 Pa m³ mol⁻¹ at 25 °C. A slight salting-out effect is to be observed by comparison of the Henry's Law constants in fresh and sea water (Zhou X, Mopper K 1990). In both media the Henry's law constants rise with temperature.

Distribution modelling using a simple one-dimensional model of the global circulation assuming a single pulse emission of acetone predicted significantly high spatial ranges of 46.5% of the earth perimeter, which are caused by their intermediate gas-phase stability and high volatility. The persistence's are predicted below 20 days, mainly due to the degradation in water and soil (Scheringer M 1997).

A generalised (STP) Fate Model based on a steady-state mass balance model designed for primary and biological reactors of a typical diffused air activated sludge system considering the processes advection, sorption, volatilisation, air stripping, and biotransformation was used to predict the fate of acetone in waste water plants. The model calculations implicate that acetone is predominantly in the aqueous phase and without biotransformation it would be transferred to the effluent. Volatilisation is not relevant. In model runs including biodegradation removal is partly due to biotransformation and to transport to the effluent (Byrns G 2001).

There are several studies concerning other distribution data dealing with the partition of acetone between air and water and the behaviour in soils. Air/water partition coefficients range from 357 – 341:1 (Cowan J 1990), these data are in accordance with the moderate volatility of acetone deduced from the experimentally derived Henry's Law constants.

Other studies are dealing with the diffusion of acetone in soil air. Soil diffusion coefficient at 0 °C was calculated for 8.8 x 10⁻³ cm²/sec (Roy W, Griffin R 1990). The diffusion coefficient for acetone was found to be considerably lower than in air. Liquid acetone is able to expand clay soils rapidly within 2-3 days to an extent of 3.5 – 8 % (Green W et al. 1983).

The calculated theoretical distribution in the environment (distribution model according to Mackay, level 1) clearly demonstrates that the atmosphere and hydrosphere are the target compartments for acetone in the environment (OECD 1999):

Air:	71.00 %
Water	28.58 %
Soil	0.00 %

2.2 Degradation

Acetone introduced in water has been shown to be **readily biodegradable** in a considerable number of reliable investigations under a wide variety of conditions (including anaerobic conditions). This holds also true also for biodegradability in sediment as well as soil. Taking into account the ubiquitous occurrence of acetone in environmental compartments, adaptation is to be assumed in the case of microbial inocula.

There are two reliable experimental studies for photo degradation in air. The overall loss rate of acetone including photo dissociation and loss by reaction with OH radicals and the corresponding lifetimes were calculated for January, Equinox and July at 40 degree northern latitude. Lifetimes were reported to be 18.6 - 114.4 days. This results correspond to the findings of the second study where the photo dissociation lifetime for 40°solar angle is reported to be $1/k_{\text{dissoc}} = 14.8$ days.

2.3 Bioaccumulation

No reliable experimental data on bioaccumulation are available. Based on the calculated BCF=3 (input parameter: measured log Kow value) no potential for bioaccumulation is to be expected (Fh-ITEM 2009).

3. Background levels

Recent monitoring data are not available. Most of the available studies refer to atmospheric concentrations.

Acetone concentrations in remote areas (Pt Barrow, Alaska, USA, 1967) were found to be $0.72 - 6.96 \mu\text{g}/\text{m}^3$ (Verschueren 1983, Cavanagh, LA et al. 1969). At rural sites in the USA, acetone concentrations were determined for $0.72 - 2.16 \mu\text{g}/\text{m}^3$ in 1971 (Robinson E et al. 1973). Mean Concentrations at rural sites (Arizona, USA, 1982) were found to be $6.2 \mu\text{g}/\text{m}^3$ (SD: ± 0.8). Somewhat higher mean concentrations of $28.8 \mu\text{g}/\text{m}^3$ (SD: ± 4) were found at urban sites (Tucson, Arizona, USA) (Snider JR, Dawson GA 1985). In at urban sites in Sweden (Stockholm, 1982/83) mean concentrations of acetone in air were in the same order of magnitude $9.7 - 46.6 \mu\text{g}/\text{m}^3$. Possible sources other than vehicle exhaust as solvent use, photochemical oxidation or biogenic sources were discussed. There was no statistically significant correlation with traffic exhaust components as CO and benzene (Jonsson A 1985). Mean ambient air concentrations in Northern Italy in 1983 - 1984 were found to be $39 \mu\text{g}/\text{m}^3$ (indoor, range: $3 - 157 \mu\text{g}/\text{m}^3$) and $6 \mu\text{g}/\text{m}^3$ (outdoor, range: $<2 - 16 \mu\text{g}/\text{m}^3$) (Verschueren 1983).

For fresh water no background concentrations are available.

In the USA some studies were performed at contaminated sites. In a contaminated well $3 \mu\text{g}/\text{L}$ acetone were determined (Rao PSC 1985). $0.56 - 600 \text{ mg}/\text{L}$ acetone was measured in landfill leachate (Verschueren 1983). $0.2 - 0.7 \mu\text{g}/\text{L}$ acetone was found in six drinking water wells in the vicinity of a solid waste landfill. In the landfill leachate $43.700 \mu\text{g}/\text{L}$ acetone was detected (DeWalle FB, Chian ESK 1981).

In contrast background concentrations in sea water are available. Acetone concentrations were determined for $0.014 - 0.052 \text{ mg}/\text{L}$ (Straits of Florida) and $0.018 - 0.053 \text{ mg}/\text{L}$ (Eastern Mediterranean) acetone (Corwin J 1969).

In sludge from the wwtp Bottrop of the Emscher Genossenschaft (receiving the wastewater of INEOS phenol) a concentration of 1.5 mg/l acetone was measured in 2010 (Emscher Genossenschaft, 2010).

2.4 – 44 mg/kg dw acetone was determined in soils (Colorado, USA, 1978) by a purge and trap method. Acetone occurred in all soils tested. The addition of lime increased emission of acetone in the three acid soils tested (Pavlica D et al. 1978).

According to handbook data acetone is a normal micro component in blood and urine, a minor constituent in pyroligneous acid and an oxidation product of alcohols and humic substances (Verschueren 1983). In cigarette smoke 2640 mg/m³ and gasoline exhaust (partly propionaldehyde) 5.52 – 33.6 mg/m³ were determined (Verschueren 1983).

Based on the releases referred in Ch. 1.4, the following regional environmental concentrations were estimated by EUSES 2.1.1:

PEC_{regional aquatic} = 2.29 µg/l

PEC_{regional marine} = 0.759 µg/l

PEC_{regional air} = 12.8 µg/m³

PEC_{regional agr.soil} = 1.9 µg/kg wwt

PEC_{regional natural soil} = 3.69 µg/kg wwt

4. Ecotoxicological information

4.1 Aquatic environment

Short-term toxicity data for fish (freshwater), invertebrates (freshwater and marine water), and algae (freshwater and marine water) as well as long-term toxicity data for freshwater invertebrates and algae are available. Algae proved to be the most sensitive fresh water organism (*Mycrocystis aeruginosa*: 8 d TT (NOEC)=530 mg/L nominal). Based on the available reliable results (results of acute toxicity testing from three trophic levels and long-term toxicity testing from two trophic levels) an assessment factor of 50 seems to be justified according to TGD. Based on this, the **PNEC aqua (freshwater)=10.6 mg/L** is obtained.

4.2 Terrestrial environment

There are no data available from guideline studies using sediment as test medium. In the absence of ecotoxicological data for sediment-dwelling organisms, the PNEC_{sed} may be provisionally calculated using the equilibrium partitioning method according to 'Guidance on information requirements and chemical safety assessment Chapter R.10 –Dose [concentration]-response regarding environment' (ECHA 2008). With the default parameters of the TGD concerning the fractions and densities in sediment as well as the substance parameters, the calculation of **PNEC soil resulted in a value of 23.9 mg/kg wet soil**.

5. Classification for the environment

Due to its **ready biodegradability** in the environment as well as its insignificant potential for bioaccumulation, acetone is not classified as dangerous/hazardous for the environment according to Directive 67/548/EEC and according to the Regulation (EC) 1272/2008 on classification, labelling and packaging of substances and mixtures (CLP Regulation):

According to Directive 67/548/EEC Annex 1 (environment): not classified

According to CLP - (EC) 1272/2008 (environment): not classified

L(E)C50 >100 mg/L; readily biodegradable, no bioaccumulation

Hazardous to the atmospheric environment:

(Hazardous to the ozone layer: This includes substances which are listed in Annex I to Regulation (EC) No 2037/2000 of the European Parliament and of the Council on substances that deplete the ozone layer (1) and its subsequent amendments):

Acetone is not listed in Annex I of (EC) No 2037/2000.

M-Factor: No

Labelling No Signal word and Pictogram for environmental hazards

6. References

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Environmental exposure – Exposure Calculation Tool (ECT)

The following pages are screen shots of the Exposure Calculation Tool “ECT_Acetone”.

This Excel tool enables the performance of scaling calculation for specific local environmental conditions. It can be downloaded from the web page of the Phenol & Derivatives REACH-consortium:

<http://www.reachcentrum.eu/EN/consortium-management/consortia-under-reach/phenol-derivatives-reach-consortium.aspx>

The tool provides three options:

1. Pre-defined safe generic scenarios
2. Risk calculation for specific local conditions
3. Calculation of maximum tonnage volumes to be used safely under specific local conditions

Some quick information about the ECT Tool

The ECT Tool should help downstream users defining acceptable scenarios for environmental release of their chemicals.

Sheets are available for environmental concentration in soil and surface water (PECsoil and PECsurface water).

The sheets calculate maximum acceptable use volumes dependent on the local situation (e.g. ERC, dilution).

The tool is based on EUSES but with some simplifications to improve the user friendliness and to concentrate on the key parameters.

As in EUSES PECsurface water is calculated as the sum of PECregional and the local concentration (Clocal).

All default parameters are taken from the respective EUSES scenarios.

A major simplification is that PECregional is defined independent on the local release scenario.

NOTE: As in EUSES not all processes are considered as being completely linear.
(e.g. doubling of the river flow rate does not lead to doubling of the dilution factor)

A couple of acceptable predefined emission scenarios (water and soil) are presented in separate sheets as examples.

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Predefined emission scenarios for Acetone (PECwater)

Use volume (t/a)	Local Release factor (%)	Removal rate (%)	dilution factor (-)	Acceptable volume (t/a)	Defined for ERC	suitable also for ERC
Default		88	10			
Site specific		88 .. 98,5	20 ... 160			
<641	100	88	10	641	4 8a 8d 10 b 11b	all
<1000	100	88	20	1283	4 8a 8d 10 b 11b	all
<1000	100	93	10	1100	4 8a 8d 10 b 11b	all
<1000	100	93	100 (sea release)	1100	4 8a 8d 10 b 11b	all
<5000	100	88	80	5134	4 8a 8d 10 b 11b	all
<5000	50	88	40	5134	5	all except 4 8a 8d 10 11b
<5000	50	97	100 (sea release)	5134	5	all except 4 8a 8d 10 11b
<10000	50	88	80	10268	5	all except 4 8a 8d 10 11b
<10000	50	95,5	30	10268	5	all except 4 8a 8d 10 11b
<10000	6	88	100 (sea release)	10696	1	all except 4 5 8a 8d 10b 11b
<10000	6	88	10	10696	1	all except 4 5 8a 8d 10b 11b
<50000	6	88	50	53482	1	all except 4 5 8a 8d 10b 11b
<50000	6	97,5	100 (sea release)	51343	1	all except 4 5 8a 8d 10b 11b
<50000	6	94	25	53482	1	all except 4 5 8a 8d 10b 11b
<50000	2	88	25	64197	2 6a 8b 8e	3 6d 8c 8f 10a 11a
<100000	6	88	100	106965	1	all except 4 5 8a 8d 10b 11b
<100000	2	96,5	100 (sea release)	110021	2 6a 8b 8e	3 6d 8c 8f 10a 11a
<100000	1	92,5	100 (sea release)	102686	8c 8f	3 6d 10a 11a
<100000	1	88	20	128358	8c 8f	3 6d 10a 11a
<500000	2	88	160	513433	2 6a 8b 8e	3 6d 10a 11a
<500000	1	98,5	100 (sea release)	513433	8c 8f	3 6d 10a 11a
<500000	1	88	80	513433	8c 8f	3 6d 10a 11a
<500000	0,2	93	100 (sea release)	550107	3	6d 10a 11a

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Predefined Environmental Release Classes

ERC	Environmental Release Class	Default Release Fraction
ERC 1	Production of chemicals	6,00%
ERC 2	Formulation of preparations	2,00%
ERC 3	Formulation in articles	0,20%
ERC 4	Industrial use of processing aids	100,00%
ERC 5	Industrial use resulting in inclusion into or onto a matrix	50,00%
ERC 6a	Industrial use of intermediates	2,00%
ERC 6b	Industrial use of reactive processing aids	5,00%
ERC 6c	Production of plastics	5,00%
ERC 6d	Production of resins/rubbers	0,005%
ERC 7	Industrial use of substances in closed systems	5,00%
ERC 8a	Wide dispersive indoor use of processing aids in open systems	100,00%
ERC 8b	Wide dispersive indoor use of reactive substances in open systems	2,00%
ERC 8c	Wide dispersive indoor use resulting in inclusion into or onto a matrix	1,00%
ERC 8d	Wide dispersive outdoor use of processing aids in open systems	100,00%
ERC 8e	Wide dispersive outdoor use of reactive substances in open systems	2,00%
ERC 8f	Wide dispersive outdoor use resulting in inclusion into or onto a matrix	1,00%
ERC 9b	Wide dispersive outdoor use of substances in closed systems	5,00%
ERC 10a	Wide dispersive outdoor use of long-life articles and materials with low release	0,16%
ERC 10b	Wide dispersive outdoor use of long-life articles and materials with high or intended release	100,00%
ERC 11a	Wide dispersive indoor use of long-life articles and materials with low release	0,05%
ERC 11b	Wide dispersive indoor use of long-life articles and materials with high or intended release	100,00%

Predefined emission scenarios for Actone (Entry route: Sludge and aerial deposition, PECsoil)

Use volume (t/a)	Local Release factor water (%)	Local Release factor air (%)	Acceptable use volume (t/a)	Defined for ERC	suitable also for ERC
<6500	100	100	6516	4 8a 8d 10 b 11b	all
<100000	6	5	118474	1	2 3 6a 6b 6c 8b 8e 9b 10a 11a
<250000	2	2,5	289603	2	8b 8e 10a 11a
<500000	2	0,1	620577	8b 8e	10a 11a
< 6 Mio	0,16	0,05	6205770	ERC 10a	11a
< 13 Mio	0,05	0,05	13032118	ERC 11a	
any	dry sludge <10000 mg/kg	air release below 300000 t/a	any	all	

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Predefined Environmental Release Classes

ERC	Environmental Release Class	Default Release Fraction	Release fraction air
ERC 1	Production of chemicals	6,00%	5,00%
ERC 2	Formulation of preparations	2,00%	2,50%
ERC 3	Formulation in articles	0,20%	30,00%
ERC 4	Industrial use of processing aids	100,00%	100,00%
ERC 5	Industrial use resulting in inclusion into or onto a matrix	50,00%	50,00%
ERC 6a	Industrial use of intermediates	2,00%	5,00%
ERC 6b	Industrial use of reactive processing aids	5,00%	0,10%
ERC 6c	Production of plastics	5,00%	5,00%
ERC 6d	Production of resins/rubbers	0,005%	35,000%
ERC 7	Industrial use of substances in closed systems	5,00%	5,00%
ERC 8a	Wide dispersive indoor use of processing aids in open systems	100,00%	100,00%
ERC 8b	Wide dispersive indoor use of reactive substances in open systems	2,00%	0,10%
ERC 8c	Wide dispersive indoor use resulting in inclusion into or onto a matrix	1,00%	15,00%
ERC 8d	Wide dispersive outdoor use of processing aids in open systems	100,00%	100,00%
ERC 8e	Wide dispersive outdoor use of reactive substances in open systems	2,00%	0,10%
ERC 8f	Wide dispersive outdoor use resulting in inclusion into or onto a matrix	1,00%	15,00%
ERC 9a	Wide dispersive outdoor use of substances in closed systems	100,00%	100,00%
ERC 9b	Wide dispersive outdoor use of substances in closed systems	2,00%	0,10%
ERC 10a	Wide dispersive outdoor use of long-life articles and materials with low release	1,00%	15,00%
ERC 10b	Wide dispersive outdoor use of long-life articles and materials with high or intended release	5,00%	5,00%
ERC 11a	Wide dispersive indoor use of longlife articles and materials with low release	5,00%	5,00%
ERC 11b	Wide dispersive indoor use of longlife articles and materials with high or intended release	0,16%	0,05%
		100,00%	100,00%
		0,05%	0,05%
		100 00%	100,00%

Calculation of maximum tonnage to meet the acceptable soil concentration

All user input has to be done in the light blue fields, all other fields are locked

Calculation of maximum tonnage to meet the acceptable surface water concentration

- 1) Enter the concentration in dry sewage sludge (mg/kg) and continue with 2
If fraction is unknown -> leave field empty and continue
- 2) Enter the annual release into the air 2
If fraction is unknown -> leave field empty and continue
- 3) Enter Environmental Release Class ERC and continue with 4
If fraction is unknown -> leave field empty and continue
- 4) Enter release time and stop
If release time is unknown -> leave field empty and stop

Calculation of maximum tonnage to meet the acceptable surface water concentration

All user input has to be done in the light blue fields, all other fields are locked

Calculation of maximum tonnage to meet the acceptable surface water concentration	
1)	Enter background level (concentration in stream before your treatment plant) If background level unknown -> leave field empty
2)	Enter dilution factor of your waste water when entering the stream/sea and continue with 6) If dilution is unknown -> leave field empty and continue
3)	If your waste water is released into the sea, enter the effluent discharge rate of your municipal treatment plant you are connected to and continue If effluent discharge rate is unknown or you release into a stream -> leave field empty and continue
4)	If your waste water is released into a river -> enter flow rate of the river and continue If flow rate of the river is unknown or you release into the sea -> leave field empty and continue If you release into the sea -> set river flow rate to "0" and continue
5)	Enter effluent discharge rate of your industrial plant and continue If effluent discharge rate is unknown -> leave field empty and continue
6)	Enter reduction rate of your WWTP and continue with 7) If reduction rate unknown -> leave field empty and continue
7)	Enter your compound release fraction in waste water (%) and continue with 8 If fraction is unknown -> leave field empty and continue
8)	Enter Environmental Release Class ERC and continue with 9 If fraction is unknown -> leave field empty and continue
9)	Enter release time and stop If release time is unknown -> leave field empty and stop

Calculation of acceptable tonnage for downstream users

Compound/Substanz: Acetone

Step	Parameter	Standard Input	User input	Considered Parameter
0	PNEC surface water (µg/L)	10600		10600
1	Background level (µg/L)	50		50,00
	maximum Conc. water, local (µg/L)	10550,00		10550,00
2	Dilution	10		10
3				0
4	Flow rate of the river (m³/d)	18000,00		18000
5	Effluent discharge rate of your industrial plant (m³/d)	2000		2000
	Concentration in wastewater after the WWTP (mg/L)			105,5
6	Reduction rate of the WWTP (%) **	88		88
	Concentration untreated wastewater (mg/L)			879,17
	Release into waste water (kg/d)			1758,33
7	Release fraction of the chemical (%)	100		100
8	Environmental Release Class ERC*			
9	Release time (d/y)	365		365
	Acceptable Use volume (t/a)			641,79

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* If you specific the ERC in field D18, you have to use exactly the same spelling as shown in column H, e.g. ERC 1
 ** The default reduction rate is basd on the EUSES calculation.

ERC	Environmental Release Class	Release fraction
ERC 1	Production of chemicals	6,00%
ERC 2	Formulation of preparations	2,00%
ERC 3	Formulation in articles	0,20%
ERC 4	Industrial use of processing aids	100,00%
ERC 5	Industrial use resulting in inclusion into or onto a matrix	50,00%
ERC 6a	Industrial use of intermediates	2,00%
ERC 6b	Industrial use of reactive processing aids	5,00%
ERC 6c	Production of plastics	5,00%
ERC 6d	Production of resins/rubbers	0,005%
ERC 7	Industrial use of substances in closed systems	5,00%
ERC 8a	Wide dispersive indoor use of processing aids in open systems	100,00%
ERC 8b	Wide dispersive indoor use of reactive substances in open systems	2,00%
ERC 8c	Wide dispersive indoor use resulting in inclusion into or onto a matrix	1,00%
ERC 8d	Wide dispersive outdoor use of processing aids in open systems	100,00%
ERC 8e	Wide dispersive outdoor use of reactive substances in open systems	2,00%
ERC 8f	Wide dispersive outdoor use resulting in inclusion into or onto a matrix	1,00%
ERC 9b	Wide dispersive outdoor use of substances in closed systems	5,00%
ERC_10a	Wide dispersive outdoor use of long-life articles and materials with low release	0,16%
ERC_10b	Wide dispersive outdoor use of long-life articles and materials with high or intended release	100,00%
ERC_11a	Wide dispersive indoor use of longlife articles and materials with low release	0,05%
ERC_11b	Wide dispersive indoor use of longlife articles and materials with high or intended release	100,00%
		100,00%

Calculation of acceptable tonnage for downstream users				
	Compound/Substanz:	Acetone		
Step	Parameter	Calculated EUSES Standard Input parameters	User input	Considered Parameter
	PNEC terrestrial environment (µg/kg)	29500		29500
	Background level (µg/kg)	1,00		1,00
	Maximum content soil, local (µg/kg)	29499,00		29499,00
	Soil contamination by sludge (µg/kg)	16090,36		16090,36
	Soil contamination by deposition (µg/kg)	13408,64		13408,64
1	Concentration in dry sewage sludge (mg/kg)	18225,27		18225,27
	Release into waste water (kg/d)			19475,15
2	Release into air (t/a)	171553,64		171553,64
	Release fraction water (%)	6		6
	Release fraction air (%)	5		5
	Maximum annual release into air (t/a)	377418		377418
3	Environmental Release Class ERC		ERC 1	ERC 1
4	Release time (d/y)	365		365
	Acceptable use volume (release into water)			118473,800
	Acceptable use volume (release into air)			3431072,727
	Acceptable Use volume (t/a)			118473,800
	developed by:			
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	You only have to specify your ERC if you do not know the concentration in sludge and the release into the air			
	If you specify the ERC in field D17, you have to use exactly the same spelling as shown in column H, e.g. ERC 1			

