SAFETY DATA SHEET
ETHANOL 93% S HUS

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

1.1. Product identifier

Product name ETHANOL 93% S HUS

Product number 64581

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

Identified uses Solvent. For further information, see attached Exposure Scenario.

1.3. Details of the supplier of the safety data sheet

Supplier

Univar Solutions UK Ltd
Aquarius House
6 Mid Point Business Park
Bradford
BD3 7AY
+44 1274 267300
+44 1274 267306
SDS.EMEA@univarsolutions.com

1.4. Emergency telephone number

Emergency telephone SGS - +32 (0)3 575 55 55 (24h)

Sds No. 64581

SECTION 2: Hazards identification

2.1. Classification of the substance or mixture

Classification (EC 1272/2008)

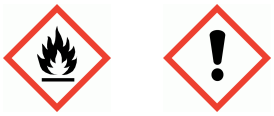
Physical hazards Flam. Liq. 2 - H225

Health hazards Eye Irrit. 2 - H319

Environmental hazards Not Classified

2.2. Label elements

Hazard pictograms



Signal word Danger

Hazard statements

H225 Highly flammable liquid and vapour.
H319 Causes serious eye irritation.

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Precautionary statements P210 Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.
P280 Wear protective gloves/ protective clothing/ eye protection/ face protection.
P303+P361+P353 IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water or shower.
P305+P351+P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P403+P235 Store in a well-ventilated place. Keep cool.
P501 Dispose of contents/ container in accordance with national regulations.

2.3. Other hazards

Vapours may form explosive mixtures with air. This product does not contain any substances classified as PBT or vPvB. The substance/mixture does not contain components considered to have endocrine disrupting properties according to REACH Article 57(f) or Commission Delegated regulation (EU) 2017/2100 or Commission Regulation (EU) 2018/605 at levels of 0.1% or higher.

SECTION 3: Composition/information on ingredients

3.2. Mixtures

ETHANOL **> 80%**

CAS number: 64-17-5 EC number: 200-578-6 REACH registration number: 01-2119457610-43-XXXX

Acute Toxicity Estimate (oral):
LD_{50} 10470 mg/kg, Oral, Rat
Acute Toxicity Estimate (dermal):
LD_{50} 15800 mg/kg, Dermal, Rat
Acute Toxicity Estimate (inhalation):
LC_{50} 20 mg/l, Inhalation, Rat
Eye Irrit. 2 - H319
≥ 50 %

Classification
Flam. Liq. 2 - H225
Eye Irrit. 2 - H319

BUTANONE **1-5%**

CAS number: 78-93-3 EC number: 201-159-0 REACH registration number: 01-2119457290-43-XXXX

Acute Toxicity Estimate (oral):
LD_{50} 3460 mg/kg, Oral, Rat
Acute Toxicity Estimate (dermal):
LD_{50} 5000 mg/kg, Dermal, Rabbit
Acute Toxicity Estimate (inhalation):
LC_{50} > 7500 ppm, Inhalation, Rat

Classification
Flam. Liq. 2 - H225
Eye Irrit. 2 - H319
STOT SE 3 - H336

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PROPAN-2-OL		**1-5%**
CAS number: 67-63-0	EC number: 200-661-7	REACH registration number: 01-2119457558-25-XXXX
Acute Toxicity Estimate (oral):5840 mg/kg Acute Toxicity Estimate (dermal):12800 mg/kg Acute Toxicity Estimate (inhalation):> 10000 ppmVapour6 hours		
Classification Flam. Liq. 2 - H225 Eye Irrit. 2 - H319 STOT SE 3 - H336		

DENATONIUM BENZOATE		**<0.1%**
CAS number: 3734-33-6	EC number: 223-095-2	
Acute Toxicity Estimate (oral): LD_{50} 584 mg/kg, Oral, Rat Acute Toxicity Estimate (dermal): LD_{50} > 2000 mg/kg, Dermal, Rabbit Acute Toxicity Estimate (inhalation): LC_{50} 200 mg/l, Inhalation, Rat		
Classification Acute Tox. 4 - H302 Skin Irrit. 2 - H315 Eye Irrit. 2 - H319 STOT SE 3 - H335		

The full text for all hazard statements is displayed in Section 16.

Composition comments The data shown are in accordance with the latest EC Directives.

SECTION 4: First aid measures

4.1. Description of first aid measures

General information Show this Safety Data Sheet to the medical personnel.

Inhalation Move affected person to fresh air and keep warm and at rest in a position comfortable for breathing. Get medical attention if symptoms are severe or persist. When breathing is difficult, properly trained personnel may assist affected person by administering oxygen.

Ingestion Move affected person to fresh air and keep warm and at rest in a position comfortable for breathing. Rinse mouth thoroughly with water. Do not induce vomiting unless under the direction of medical personnel. If vomiting occurs, the head should be kept low so that vomit does not enter the lungs. Get medical attention if symptoms are severe or persist.

Skin contact Remove contaminated clothing immediately and wash skin with soap and water. Get medical attention if symptoms are severe or persist after washing.

Eye contact Rinse immediately with plenty of water. Remove any contact lenses and open eyelids wide apart. Continue to rinse for at least 15 minutes. Get medical attention.

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

Inhalation Vapours may cause headache, fatigue, dizziness and nausea.

Ingestion May cause nausea, headache, dizziness and intoxication.

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Skin contact Prolonged contact may cause dryness of the skin.

Eye contact Causes serious eye irritation.

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

Notes for the doctor Treat symptomatically.

SECTION 5: Firefighting measures

5.1. Extinguishing media

Suitable extinguishing media Extinguish with alcohol-resistant foam, carbon dioxide, dry powder or water fog.

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

Specific hazards Highly flammable liquid and vapour. Vapours may form explosive mixtures with air.

Hazardous combustion products Thermal decomposition or combustion may liberate carbon oxides and other toxic gases or vapours.

5.3. Advice for firefighters

Protective actions during firefighting Avoid the spillage or runoff entering drains, sewers or watercourses. Contain and collect extinguishing water. Fire-water run-off in sewers may create fire or explosion hazard.

Special protective equipment for firefighters Wear positive-pressure self-contained breathing apparatus (SCBA) and appropriate protective clothing.

SECTION 6: Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

Personal precautions Approach the spillage from upwind. Keep unnecessary and unprotected personnel away from the spillage. Avoid inhalation of vapours and contact with skin and eyes. No action shall be taken without appropriate training or involving any personal risk. Take precautionary measures against static discharges. Provide adequate ventilation. No smoking, sparks, flames or other sources of ignition near spillage. Use only non-sparking tools. Use explosion-proof electrical equipment.

6.2. Environmental precautions

Environmental precautions Avoid the spillage or runoff entering drains, sewers or watercourses. Spillages or uncontrolled discharges into watercourses must be reported immediately to the Environmental Agency or other appropriate regulatory body.

6.3. Methods and material for containment and cleaning up

Methods for cleaning up Provide adequate ventilation. No smoking, sparks, flames or other sources of ignition near spillage. Use explosion-proof electrical equipment. Use only non-sparking tools. Absorb spillage with non-combustible, absorbent material. Collect and place in suitable waste disposal containers and seal securely. Label the containers containing waste and contaminated materials and remove from the area as soon as possible. Flush contaminated area with plenty of water. Clean contaminated objects and areas thoroughly, observing environmental regulations.

6.4. Reference to other sections

Reference to other sections For personal protection, see Section 8. For waste disposal, see section 13.

SECTION 7: Handling and storage

7.1. Precautions for safe handling

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Usage precautions Avoid inhalation of vapours and contact with skin and eyes. Keep away from heat, sparks and open flame. Ground/bond container and receiving equipment. Take precautionary measures against static discharges. Use only non-sparking tools. Use explosion-proof electrical equipment. Vapours may form explosive mixtures with air. Do not cut or weld used containers unless they have been thoroughly cleaned internally.

Advice on general occupational hygiene Do not eat, drink or smoke when using this product. Remove contaminated clothing and protective equipment before entering eating areas. Wash at the end of each work shift and before eating, smoking and using the toilet. Provide eyewash station and safety shower.

7.2. Conditions for safe storage, including any incompatibilities

Storage precautions Store in tightly-closed, original container in a dry, cool and well-ventilated place. Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking. Avoid exposure to high temperatures or direct sunlight. Storage tanks and other containers must be earthed. Use explosion-proof electrical equipment. Avoid contact with the following materials: Acids. Oxidising agents. Flammable/combustible materials. Metal oxides. Halogenated hydrocarbons. Oxides of phosphorus.

Storage class Flammable liquid storage.

7.3. Specific end use(s)

Specific end use(s) The identified uses for this product are detailed in Section 1.2.

SECTION 8: Exposure controls/Personal protection

8.1. Control parameters

Occupational exposure limits

ETHANOL

Long-term exposure limit (8-hour TWA): WEL 1000 ppm 1920 mg/m³

BUTANONE

Long-term exposure limit (8-hour TWA): WEL 200 ppm 600 mg/m³
Short-term exposure limit (15-minute): WEL 300 ppm 899 mg/m³
Sk, BMGV

PROPAN-2-OL

Long-term exposure limit (8-hour TWA): WEL 400 ppm 999 mg/m³
Short-term exposure limit (15-minute): WEL 500 ppm 1250 mg/m³

WEL = Workplace Exposure Limit.
Sk = Can be absorbed through the skin.
BMGV = Biological monitoring guidance value.

ETHANOL (CAS: 64-17-5)

Ingredient comments WEL = Workplace Exposure Limits

DNEL
Workers - Inhalation; Long term systemic effects: 950 mg/m³
Workers - Inhalation; Short term local effects: 1900 mg/m³
Workers - Dermal; Long term systemic effects: 343 mg/kg/day
General population - Inhalation; Long term systemic effects: 114 mg/m³
General population - Inhalation; Short term local effects: 950 mg/m³
General population - Dermal; Long term systemic effects: 206 mg/kg/day
General population - Oral; Long term systemic effects: 87 mg/kg/day

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PNEC
- Fresh water; 0.96 mg/l
- marine water; 0.79 mg/l
- Intermittent release; 2.75 mg/l
- STP; 580 mg/l
- Sediment (Freshwater); 3.6 mg/kg
- Sediment (Marinewater); 2.9 mg/kg
- Soil; 0.63 mg/kg

BUTANONE (CAS: 78-93-3)

Ingredient comments WEL = Workplace Exposure Limits

DNEL
Industry - Dermal; Long term systemic effects: 1161 mg/kg/day
Industry - Inhalation; Long term systemic effects: 600 mg/m³
Consumer - Dermal; Long term systemic effects: 412 mg/kg/day
Consumer - Inhalation; Long term systemic effects: 106 mg/m³
Consumer - Oral; Long term systemic effects: 31 mg/kg/day

PNEC
- Fresh water; 55.8 mg/l
- marine water; 55.8 mg/l
- STP; 709 mg/l
- Sediment; 284.7 mg/kg
- Soil; 22.5 mg/kg
- Intermittent release; 55.8 mg/l

PROPAN-2-OL (CAS: 67-63-0)

DNEL
Industry - Dermal; Long term systemic effects: 888 mg/kg/day
Industry - Inhalation; Long term systemic effects: 500 mg/m³
Consumer - Dermal; Long term systemic effects: 319 mg/kg/day
Consumer - Inhalation; Long term systemic effects: 89 mg/m³
Consumer - Oral; Long term systemic effects: 26 mg/kg/day

PNEC
- Fresh water; 140.9 mg/l
- marine water; 140.9 mg/l
- Intermittent release; 140.9 mg/l
- STP; 2251 mg/l
- Sediment (Freshwater); 552 mg/kg
- Sediment (Marinewater); 552 mg/kg
- Soil; 28 mg/kg

DENATONIUM BENZOATE (CAS: 3734-33-6)

Ingredient comments No exposure limits known for ingredient(s).

8.2. Exposure controls

Protective equipment

Appropriate engineering controls Provide adequate ventilation. Use explosion-proof electrical equipment. Observe any occupational exposure limits for the product or ingredients. Provide eyewash station and safety shower.

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Eye/face protection	Eyewear complying with an approved standard should be worn if a risk assessment indicates eye contact is possible. Unless the assessment indicates a higher degree of protection is required, the following protection should be worn: Chemical splash goggles. Personal protective equipment for eye and face protection should comply with European Standard EN166.
Hand protection	Chemical-resistant, impervious gloves complying with an approved standard should be worn if a risk assessment indicates skin contact is possible. The most suitable glove should be chosen in consultation with the glove supplier/manufacturer, who can provide information about the breakthrough time of the glove material. It is recommended that gloves are made of the following material: Butyl rubber. Nitrile rubber. To protect hands from chemicals, gloves should comply with European Standard EN374.
Other skin and body protection	Wear suitable protective clothing as protection against splashing or contamination. Wear anti-static protective clothing if there is a risk of ignition from static electricity.
Hygiene measures	Do not eat, drink or smoke when using this product. Wash after use and before eating, smoking and using the toilet. Remove contaminated clothing and protective equipment before entering eating areas.
Respiratory protection	Respiratory protection must be used if the airborne contamination exceeds the recommended occupational exposure limit. Gas filter, type A2. Ensure all respiratory protective equipment is suitable for its intended use and is 'CE'-marked.

SECTION 9: Physical and chemical properties

9.1. Information on basic physical and chemical properties

Appearance	Clear liquid.
Colour	Colourless.
Odour	Solvent.
Odour threshold	No information available.
pH	No information available.
Melting point	No information available.
Initial boiling point and range	78°C @
Flash point	< 23°C
Evaporation rate	No information available.
Evaporation factor	No information available.
Flammability (solid, gas)	No information available.
Upper/lower flammability or explosive limits	Lower flammable/explosive limit: 3.5 % Upper flammable/explosive limit: 15 % Information given is applicable to the major ingredient.
Other flammability	No information available.
Vapour pressure	No information available.
Vapour density	No information available.
Relative density	0.81 - 0.82
Bulk density	No information available.
Solubility(ies)	Miscible with water.
Partition coefficient	Log Koc: -0.35 Information given is applicable to the major ingredient.

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Auto-ignition temperature	No information available.
Decomposition Temperature	No information available.
Viscosity	No information available.
Explosive properties	No information available.
Explosive under the influence of a flame	No information available.
Oxidising properties	No information available.

9.2. Other information

Other information	No information available.

SECTION 10: Stability and reactivity

10.1. Reactivity

Reactivity	The following materials may react with the product: Peroxides. Acids. Oxidising agents. Metal oxides. halogenated hydrocarbons Oxides of phosphorus.

10.2. Chemical stability

Stability	Stable at normal ambient temperatures and when used as recommended.

10.3. Possibility of hazardous reactions

Possibility of hazardous reactions	Solvent vapours may form explosive mixtures with air.

10.4. Conditions to avoid

Conditions to avoid	Avoid heat, flames and other sources of ignition. Take precautionary measures against static discharges.

10.5. Incompatible materials

Materials to avoid	Avoid contact with the following materials: Oxidising agents. Acids. Peroxides. Metal oxides. Halogenated hydrocarbons. Oxides of phosphorus. Flammable/combustible materials.

10.6. Hazardous decomposition products

Hazardous decomposition products	Thermal decomposition or combustion may liberate carbon oxides and other toxic gases or vapours.

SECTION 11: Toxicological information

11.1. Information on toxicological effects

Acute toxicity - oral

Notes (oral LD_{50})	Based on available data the classification criteria are not met.

Acute toxicity - dermal

Notes (dermal LD_{50})	Based on available data the classification criteria are not met.

Acute toxicity - inhalation

Notes (inhalation LC_{50})	Based on available data the classification criteria are not met.

Skin corrosion/irritation

Skin corrosion/irritation	Based on available data the classification criteria are not met.

Serious eye damage/irritation

Serious eye damage/irritation	Causes serious eye irritation.

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Skin sensitisation

Skin sensitisation Based on available data the classification criteria are not met.

Germ cell mutagenicity

Genotoxicity - in vitro Based on available data the classification criteria are not met.

Carcinogenicity

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

Reproductive toxicity

Reproductive toxicity - fertility Based on available data the classification criteria are not met.

Specific target organ toxicity - single exposure

STOT - single exposure Based on available data the classification criteria are not met.

Specific target organ toxicity - repeated exposure

STOT - repeated exposure Based on available data the classification criteria are not met.

Aspiration hazard

Aspiration hazard No information available.

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

Inhalation Vapours may cause headache, fatigue, dizziness and nausea.

Ingestion May cause nausea, headache, dizziness and intoxication.

Skin contact Prolonged contact may cause dryness of the skin.

Eye contact Causes serious eye irritation.

Toxicological information on ingredients.

ETHANOL

Acute toxicity - oral

Acute toxicity oral (LD_{50} mg/kg)	10,470.0
Species	Rat

Acute toxicity - dermal

Acute toxicity dermal (LD_{50} mg/kg)	15,800.0
Species	Rat

Acute toxicity - inhalation

Acute toxicity inhalation (LC_{50} vapours mg/l)	20.0
Species	Rat
ATE inhalation (vapours mg/l)	20.0

Skin corrosion/irritation

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Animal data	Not irritating. Rabbit OECD 404

Serious eye damage/irritation

Serious eye damage/irritation	Irritating. Rabbit OECD 405

Respiratory sensitisation

Respiratory sensitisation	Not sensitising.

Skin sensitisation

Skin sensitisation	Not sensitising. Mouse OECD 429

Germ cell mutagenicity

Genotoxicity - in vitro	Based on available data the classification criteria are not met.

Carcinogenicity

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

Reproductive toxicity

Reproductive toxicity - fertility	Based on available data the classification criteria are not met.

Specific target organ toxicity - single exposure

STOT - single exposure	Based on available data the classification criteria are not met.

Specific target organ toxicity - repeated exposure

STOT - repeated exposure	Based on available data the classification criteria are not met.

Aspiration hazard

Aspiration hazard	No information available.

Toxicokinetics	The substance/mixture does not contain components considered to have endocrine disrupting properties according to REACH Article 57(f) or Commission Delegated regulation (EU) 2017/2100 or Commission Regulation (EU) 2018/605 at levels of 0.1% or higher.
Inhalation	Vapours in high concentrations are narcotic. Symptoms following overexposure may include the following: Headache. Fatigue. Dizziness. Nausea, vomiting.
Ingestion	Ingestion of large amounts may cause unconsciousness. May cause nausea, headache, dizziness and intoxication.
Skin contact	Prolonged contact may cause dryness of the skin.
Eye contact	Causes serious eye irritation.

BUTANONE

Acute toxicity - oral

Acute toxicity oral (LD_{50} mg/kg)	3,460.0
Species	Rat
Notes (oral LD_{50})	OECD 423
ATE oral (mg/kg)	3,460.0

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Acute toxicity - dermal

Acute toxicity dermal (LD_{50} mg/kg)	5,000.0
Species	Rabbit
Notes (dermal LD_{50})	OECD 402

Acute toxicity - inhalation

Notes (inhalation LC_{50})	LC_{50} > 7500 ppm, Inhalation, Rat

Skin corrosion/irritation

Skin corrosion/irritation	Not irritating.

Serious eye damage/irritation

Serious eye damage/irritation	Causes serious eye irritation.

Respiratory sensitisation

Respiratory sensitisation	No information available.

Skin sensitisation

Skin sensitisation	Not sensitising. Buehler test - Guinea pig: Not sensitising. OECD 406

Germ cell mutagenicity

Genotoxicity - in vitro	This substance has no evidence of mutagenic properties. Bacterial reverse mutation test: Negative. Gene mutation: Negative. Chromosome aberration: Negative.
Genotoxicity - in vivo	Based on available data the classification criteria are not met.

Carcinogenicity

Carcinogenicity	There is no evidence that the product can cause cancer.

Reproductive toxicity

Reproductive toxicity - fertility	This substance has no evidence of toxicity to reproduction.
Reproductive toxicity - development	This substance has no evidence of toxicity to reproduction.

Specific target organ toxicity - single exposure

STOT - single exposure	May cause drowsiness or dizziness. Central nervous system depression.

Specific target organ toxicity - repeated exposure

STOT - repeated exposure	Prolonged contact may cause redness, irritation and dry skin. NOAEL 5014 ppm, Inhalation, Rat

Aspiration hazard

Aspiration hazard	Entry into the lungs following ingestion or vomiting may cause chemical pneumonitis.

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Toxicokinetics	The substance/mixture does not contain components considered to have endocrine disrupting properties according to REACH Article 57(f) or Commission Delegated regulation (EU) 2017/2100 or Commission Regulation (EU) 2018/605 at levels of 0.1% or higher.
Inhalation	Vapour may irritate respiratory system/lungs. Vapours may cause drowsiness and dizziness.
Ingestion	May cause stomach pain or vomiting. May cause nausea, headache, dizziness and intoxication.
Skin contact	Repeated exposure may cause skin dryness or cracking.
Eye contact	Irritating to eyes.

PROPAN-2-OL

Acute toxicity - oral

Acute toxicity oral (LD_{50} mg/kg)	5,840.0
Species	Rat
Notes (oral LD_{50})	LD_{50} 5840 mg/kg, Oral, Rat OECD 401
ATE oral (mg/kg)	5,840.0

Acute toxicity - dermal

Acute toxicity dermal (LD_{50} mg/kg)	12,800.0
Species	Rabbit
Notes (dermal LD_{50})	LD_{50} > 12800 mg/kg, Dermal, Rabbit OECD 402
ATE dermal (mg/kg)	12,800.0

Acute toxicity - inhalation

Acute toxicity inhalation (LC_{50} gases ppmV)	10,000.0
Species	Rat
Notes (inhalation LC_{50})	LC_{50} > 10000 ppm, 6 hours, Vapour Rat OECD 403

Skin corrosion/irritation

Animal data	Not irritating.

Serious eye damage/irritation

Serious eye damage/irritation	Causes serious eye irritation.

Respiratory sensitisation

Respiratory sensitisation	No information available.

Skin sensitisation

Skin sensitisation	No information available.

Germ cell mutagenicity

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Genotoxicity - in vitro	Negative.
Carcinogenicity	
Carcinogenicity	There is no evidence that the product can cause cancer.
Reproductive toxicity	
Reproductive toxicity - fertility	No evidence of reproductive toxicity in animal studies.
Specific target organ toxicity - single exposure	
STOT - single exposure	May cause drowsiness or dizziness.
Specific target organ toxicity - repeated exposure	
STOT - repeated exposure	No information available.
Aspiration hazard	
Aspiration hazard	Entry into the lungs following ingestion or vomiting may cause chemical pneumonitis.
Toxicokinetics	The substance/mixture does not contain components considered to have endocrine disrupting properties according to REACH Article 57(f) or Commission Delegated regulation (EU) 2017/2100 or Commission Regulation (EU) 2018/605 at levels of 0.1% or higher.
Inhalation	Gas or vapour in high concentrations may irritate the respiratory system. May cause drowsiness or dizziness.
Ingestion	Droplets of the product aspirated into the lungs through ingestion or vomiting may cause a serious chemical pneumonia.
Skin contact	Skin irritation should not occur when used as recommended.
Eye contact	Causes serious eye irritation.
Target organs	Kidneys Liver

DENATONIUM BENZOATE

Acute toxicity - oral	
Acute toxicity oral (LD_{50} mg/kg)	584.0
Species	Rat
ATE oral (mg/kg)	584.0
Acute toxicity - dermal	
Notes (dermal LD_{50})	LD_{50} >2000 mg/kg, Dermal, Rabbit
Acute toxicity - inhalation	
Acute toxicity inhalation (LC_{50} vapours mg/l)	200.0
Species	Rat
ATE inhalation (vapours mg/l)	200.0

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Skin corrosion/irritation

Extreme pH Irritating.

Serious eye damage/irritation

Serious eye damage/irritation Causes serious eye irritation.

Respiratory sensitisation

Respiratory sensitisation No specific test data are available.

Skin sensitisation

Skin sensitisation No specific test data are available.

Germ cell mutagenicity

Genotoxicity - in vitro No specific test data are available.

Carcinogenicity

Carcinogenicity No specific test data are available.

Reproductive toxicity

Reproductive toxicity - fertility No specific test data are available.

Specific target organ toxicity - single exposure

STOT - single exposure May cause respiratory irritation.

Specific target organ toxicity - repeated exposure

STOT - repeated exposure No specific test data are available.

Aspiration hazard

Aspiration hazard Not available.

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

Inhalation May cause respiratory irritation.

Ingestion Harmful if swallowed.

Skin contact Irritating to skin.

Eye contact Irritating to eyes.

SECTION 12: Ecological information

Ecotoxicity The product components are not classified as environmentally hazardous. However, this does not exclude the possibility that large or frequent spills can have a harmful or damaging effect on the environment.

Ecological information on ingredients.

ETHANOL

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Ecotoxicity	The product components are not classified as environmentally hazardous. However, large or frequent spills may have hazardous effects on the environment.

BUTANONE

Ecotoxicity	The product components are not classified as environmentally hazardous. However, this does not exclude the possibility that large or frequent spills can have a harmful or damaging effect on the environment.

PROPAN-2-OL

Ecotoxicity	The product is not expected to be hazardous to the environment. However, large or frequent spills may have hazardous effects on the environment.

DENATONIUM BENZOATE

Ecotoxicity	The product components are not classified as environmentally hazardous. However, large or frequent spills may have hazardous effects on the environment.

12.1. Toxicity

Toxicity No information available.

Ecological information on ingredients.

ETHANOL

Toxicity	Not considered toxic to fish.
Acute aquatic toxicity	
Acute toxicity - fish	LC_{50}, 48 hours: > 100 mg/l, Leuciscus idus (Golden orfe) LC_{50}, 96 hour: 14200 mg/l, Pimephales promelas (Fat-head Minnow) LC_{50}, 96 hour: 13000 mg/l, Oncorhynchus mykiss (Rainbow trout) LC_{50}, 96 hour: 12000 - 16000 mg/l, Oryzias latipes (Red killifish)
Acute toxicity - aquatic invertebrates	EC_{50}, 48 hours: 12340 mg/l, Daphnia magna
Acute toxicity - aquatic plants	EC_{50}, 48 hours: > 100 mg/l, Selenastrum capricornutum EC_{50}, 72 hour: 275 mg/l, (Chlorella vulgaris)
Chronic aquatic toxicity	
Chronic toxicity - aquatic invertebrates	NOEC, 9 day: 9.6 mg/l, Daphnia magna

BUTANONE

Toxicity	Not considered toxic to fish.
Acute aquatic toxicity	
Acute toxicity - fish	LC_{50}, 96 hours: 2993 mg/l, Pimephales promelas (Fat-head Minnow)
Acute toxicity - aquatic invertebrates	EC_{50}, 48 hours: 308 mg/l, Daphnia magna
Acute toxicity - aquatic plants	ErC50, 96 hour: 2029 mg/l, Pseudokirchneriella subcapitata OECD 201

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PROPAN-2-OL

Toxicity	Not considered toxic to fish.

Acute aquatic toxicity

Acute toxicity - fish	LC_{50}, 48 hours: 9640 mg/l, Pimephales promelas (Fat-head Minnow)
Acute toxicity - aquatic invertebrates	EC_{50}, 48 hours: 10000 mg/l, Daphnia magna
Acute toxicity - aquatic plants	EC_{50}, 7 days: 1800 mg/l, Algae

DENATONIUM BENZOATE

Acute aquatic toxicity

Acute toxicity - fish	LC_{50}, 96 hours: >1000 mg/l, Oncorhynchus mykiss (Rainbow trout)
Acute toxicity - aquatic invertebrates	EC_{50}, 48 hours: 13 mg/l, Daphnia magna

12.2. Persistence and degradability

Persistence and degradability Expected to be readily biodegradable.

Ecological information on ingredients.

ETHANOL

Persistence and degradability	The product is readily biodegradable. The product is degraded completely by photochemical oxidation.
Biodegradation	- Degradation 84%: 20 day - Half-life : 1 - <10 days

BUTANONE

Persistence and degradability	The product is readily biodegradable.
Biodegradation	- Degradation 98%: 28 days OECD 301D

PROPAN-2-OL

Persistence and degradability	The substance is readily biodegradable.
Biological oxygen demand	53 %

DENATONIUM BENZOATE

Persistence and degradability	The product is readily biodegradable.
Biodegradation	- >97%:

12.3. Bioaccumulative potential

Bioaccumulative potential Bioaccumulation is unlikely.

ETHANOL 93% S HUS

Partition coefficient Log Koc: -0.35 Information given is applicable to the major ingredient.

Ecological information on ingredients.

ETHANOL

Bioaccumulative potential The product is not bioaccumulating.

Partition coefficient log Pow: - 0.31

BUTANONE

Bioaccumulative potential Bioaccumulation is unlikely.

Partition coefficient log Pow: 0.3

PROPAN-2-OL

Bioaccumulative potential The product is not bioaccumulating.

Partition coefficient log Pow: 0.05 OECD 107

DENATONIUM BENZOATE

Bioaccumulative potential The product is not bioaccumulating.

Partition coefficient No information available.

12.4. Mobility in soil

Mobility Miscible with water.

Ecological information on ingredients.

ETHANOL

Mobility The product contains volatile organic compounds (VOCs) which will evaporate easily from all surfaces. The product is water-soluble and may spread in water systems.

BUTANONE

Mobility The product is soluble in water.

Adsorption/desorption coefficient Highly mobile. - Koc: 3.8 @ 20°C

PROPAN-2-OL

Mobility The product is soluble in water.

Surface tension 22.7 mN/m @ 20°C

DENATONIUM BENZOATE

Mobility The product is soluble in water.

12.5. Results of PBT and vPvB assessment

Results of PBT and vPvB assessment This product does not contain any substances classified as PBT or vPvB.

ETHANOL 93% S HUS

Ecological information on ingredients.

ETHANOL

Results of PBT and vPvB assessment This substance is not classified as PBT or vPvB according to current EU criteria.

BUTANONE

Results of PBT and vPvB assessment This product does not contain any substances classified as PBT or vPvB.

PROPAN-2-OL

Results of PBT and vPvB assessment This substance is not classified as PBT or vPvB according to current EU criteria.

DENATONIUM BENZOATE

Results of PBT and vPvB assessment No information available.

12.6. Other adverse effects

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

Ecological information on ingredients.

ETHANOL

Other adverse effects The product contains volatile organic compounds (VOCs) which have a photochemical ozone creation potential. The substance/mixture does not contain components considered to have endocrine disrupting properties according to REACH Article 57(f) or Commission Delegated regulation (EU) 2017/2100 or Commission Regulation (EU) 2018/605 at levels of 0.1% or higher.

BUTANONE

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

PROPAN-2-OL

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

DENATONIUM BENZOATE

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

ETHANOL 93% S HUS

SECTION 13: Disposal considerations

13.1. Waste treatment methods

General information Waste is classified as hazardous waste. Highly flammable liquid and vapour. Do not puncture or incinerate, even when empty. Do not cut or weld used containers unless they have been thoroughly cleaned internally. Materials such as cleaning rags and paper wipes that are contaminated with flammable liquids may self-ignite after use and should be stored in designated fireproof containers with tight-fitting, self-closing lids.

Disposal methods Dispose of waste to licensed waste disposal site in accordance with the requirements of the local Waste Disposal Authority.

Waste class Waste codes should be assigned by the user, preferably in discussion with the waste disposal authorities.

SECTION 14: Transport information

14.1. UN number

UN No. (ADR/RID) 1993

UN No. (IMDG) 1993

UN No. (ICAO) 1993

UN No. (ADN) 1993

14.2. UN proper shipping name

Proper shipping name (ADR/RID) FLAMMABLE LIQUID, N.O.S. (CONTAINS ETHANOL, BUTANONE)

Proper shipping name (IMDG) FLAMMABLE LIQUID, N.O.S. (CONTAINS ETHANOL, BUTANONE)

Proper shipping name (ICAO) FLAMMABLE LIQUID, N.O.S. (CONTAINS ETHANOL, BUTANONE)

Proper shipping name (ADN) FLAMMABLE LIQUID, N.O.S. (CONTAINS ETHANOL, BUTANONE)

14.3. Transport hazard class(es)

ADR/RID class 3

ADR/RID classification code F1

ADR/RID label 3

IMDG class 3

ICAO class/division 3

ADN class 3

Transport labels

14.4. Packing group

ADR/RID packing group II

IMDG packing group II

ICAO packing group II

ADN packing group II

ETHANOL 93% S HUS

14.5. Environmental hazards

Environmentally hazardous substance/marine pollutant
No.

14.6. Special precautions for user

EmS	F-E, S-E
ADR transport category	2
Emergency Action Code	•3YE
Hazard Identification Number (ADR/RID)	33
Tunnel restriction code	(D/E)

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

Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code	Not applicable.

SECTION 15: Regulatory information

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

EU legislation	Regulation (EC) No 1907/2006 of the European Parliament and of the Council of 18 December 2006 concerning the Registration, Evaluation, Authorisation and Restriction of Chemicals (REACH) (as amended). Regulation (EC) No 1272/2008 of the European Parliament and of the Council of 16 December 2008 on classification, labelling and packaging of substances and mixtures (as amended). Commission Regulation (EU) No 2015/830 of 28 May 2015.
Restrictions (Annex XVII Regulation 1907/2006)	This product is/contains a substance that is included in REGULATION (EC) No 1907/2006 (REACH) ANNEX XVII - RESTRICTIONS ON THE MANUFACTURE, PLACING ON THE MARKET AND USE OF CERTAIN DANGEROUS SUBSTANCES, MIXTURES AND ARTICLES. Entry number: 3
Seveso Directive - Control of major accident hazards	P5c

15.2. Chemical safety assessment

Not applicable.

SECTION 16: Other information

ETHANOL 93% S HUS

Abbreviations and acronyms used in the safety data sheet

ATE: Acute Toxicity Estimate.
ADR: European Agreement concerning the International Carriage of Dangerous Goods by Road.
ADN: European Agreement concerning the International Carriage of Dangerous Goods by Inland Waterways.
CAS: Chemical Abstracts Service.
DNEL: Derived No Effect Level.
IATA: International Air Transport Association.
IMDG: International Maritime Dangerous Goods.
Kow: Octanol-water partition coefficient.
LC_{50}: Lethal Concentration to 50 % of a test population.
LD_{50}: Lethal Dose to 50% of a test population (Median Lethal Dose).
PBT: Persistent, Bioaccumulative and Toxic substance.
PNEC: Predicted No Effect Concentration.
REACH: Registration, Evaluation, Authorisation and Restriction of Chemicals Regulation (EC) No 1907/2006.
RID: European Agreement concerning the International Carriage of Dangerous Goods by Rail.
vPvB: Very Persistent and Very Bioaccumulative.
IARC: International Agency for Research on Cancer.
MARPOL 73/78: International Convention for the Prevention of Pollution From Ships, 1973 as modified by the Protocol of 1978.
cATpE: Converted Acute Toxicity Point Estimate.
BCF: Bioconcentration Factor.
BOD: Biochemical Oxygen Demand.
EC_{50}: 50% of maximal Effective Concentration.
LOAEC: Lowest Observed Adverse Effect Concentration.
LOAEL: Lowest Observed Adverse Effect Level.
NOAEC: No Observed Adverse Effect Concentration.
NOAEL: No Observed Adverse Effect Level.
NOEC: No Observed Effect Concentration.
LOEC: Lowest Observed Effect Concentration.
DMEL: Derived Minimal Effect Level.
EL50: Exposure Limit 50
hPa: Hectopascal
LL50: Lethal Loading fifty
OECD: Organisation for Economic Co-operation and Development
POW: Octanol-water partition coefficient
SCBA: self-contained breathing apparatus
STP: Sewage Treatment Plant
VOC: Volatile Organic Compounds

Classification abbreviations and acronyms

Acute Tox. = Acute toxicity
Aquatic Acute = Hazardous to the aquatic environment (acute)
Aquatic Chronic = Hazardous to the aquatic environment (chronic)

Key literature references and sources for data

Supplier's information.

Classification procedures according to Regulation (EC) 1272/2008

Flam. Liq. 2 - H225: Expert judgement. Eye Irrit. 2 - H319: Calculation method.

Revision date

10/11/2022

Version number

1.000

ETHANOL 93% S HUS

SDS number	64581
SDS status	Approved.
Hazard statements in full	H225 Highly flammable liquid and vapour. H302 Harmful if swallowed. H315 Causes skin irritation. H319 Causes serious eye irritation. H335 May cause respiratory irritation. H336 May cause drowsiness or dizziness.
Signature	J Spenceley

Exposure scenario
Industrial manufacturing of Ethanol, or use as intermediate or process chemical

Identification

Product name	Ethanol
REACH registration number	01-2119457610-43-XXXX
CAS number	64-17-5
EC number	200-578-6
EU index number	603-002-00-5
Supplier	Univar Solutions UK Ltd Aquarius House 6 Mid Point Business Park Bradford BD3 7AY +44 1274 267300 +44 1274 267306 SDS.EMEA@univarsolutions.com

1. Title of exposure scenario

Main title	Industrial manufacturing of Ethanol, or use as intermediate or process chemical
Process scope	Manufacture of the substance or use as a process chemical or extraction agent. Includes recycling/recovery, material transfers, storage, maintenance and loading (including marine vessel/barge, road/rail car and bulk container), sampling and associated laboratory activities.
Main sector	SU3 Industrial uses
Sector of use	SU8 Manufacture of bulk, large-scale chemicals (including petroleum products) SU9 Manufacture of fine chemicals

Environment

Environmental release category	ERC1 Manufacture of the substance ERC4 Use of non-reactive processing aid at industrial site (no inclusion into or onto article) ERC6a Use of intermediate

Worker

Process category	PROC1 Chemical production or refinery in closed process without likelihood of exposure or processes with equivalent containment conditions PROC2 Chemical production or refinery in closed continuous process with occasional controlled exposure or processes with equivalent containment conditions PROC3 Manufacture or formulation in the chemical industry in closed batch processes with occasional controlled exposure or processes with equivalent containment condition PROC4 Chemical production where opportunity for exposure arises PROC8a Transfer of substance or mixture (charging and discharging) at non-dedicated facilities PROC8b Transfer of substance or mixture (charging and discharging) at dedicated facilities

Industrial manufacturing of Ethanol, or use as intermediate or process chemical

2. Conditions of use affecting exposure (Industrial - Environment 1)

Product characteristics

Physical state Liquid

Concentration details Covers concentrations up to 100 %.

Amounts used

Annual amount per site: 400000 tonnes
Annual amount used in the EU: 4600000 tonnes

Frequency and duration of use

Continuous.
Emission days: 350 days/year

Environmental factors not influenced by risk management measures

Dilution Receiving water dilution (fresh or marine): 18000 m³/day

Risk management measures

Good practice Carefully handle the substance to minimise releases.

Technical measures Bund storage facilities to prevent soil and water pollution in the event of spillage. When not in use, keep containers tightly closed. Avoid discharge into drains and the aquatic environment.

STP type Municipal STP.

STP details Assumed domestic sewage treatment plant flow: 2000 m³/day
Removal efficiency (total): 90%

Technical onsite conditions and measures to reduce or limit discharges to air, water and soil

Air Treat air emission to provide a typical removal efficiency of 70%.

Water Typical onsite wastewater treatment technology provides removal efficiency of 87%.

Conditions and measures related to external treatment of waste for disposal

Sludge treatment Sludge is disposed of or recovered.

Disposal method Contain and dispose of waste according to local regulations. Incineration, disposal or recycling at specific offsite provider.

2. Conditions of use affecting exposure (Workers - Health 1)

Product characteristics

Physical state Liquid

Vapour pressure 5.73 kPa @ 20°C

Concentration details Covers concentrations up to 100 %.

Frequency and duration of use

Covers daily exposures up to 8 hours (unless stated differently).

Human factors not influenced by risk management

Industrial manufacturing of Ethanol, or use as intermediate or process chemical

Potentially exposed body parts	PROC1 Chemical production or refinery in closed process without likelihood of exposure or processes with equivalent containment conditions PROC2 Chemical production or refinery in closed continuous process with occasional controlled exposure or processes with equivalent containment conditions Palm of both hands. Covers skin contact area up to 480 cm². PROC8a Transfer of substance or mixture (charging and discharging) at non-dedicated facilities PROC8b Transfer of substance or mixture (charging and discharging) at dedicated facilities Both hands. Covers skin contact area up to 960 cm².

Other given operational conditions affecting workers exposure

Setting	Indoor/outdoor use.
Temperature	Assumes activities are at ambient temperature (unless stated differently).

Technical conditions and measures at process level (source) to prevent release

Technical protective measures	Handle substance within a predominantly closed system provided with extract ventilation. Ensure material transfers are under containment or extract ventilation. Provide extract ventilation at the points where emissions occur.

Organisational measures to prevent/limit releases, dispersion and exposure

Organisational measures	Assumes a good basic standard of occupational hygiene is implemented.

Risk management measures

Avoid direct skin contact with product. Identify potential areas for indirect skin contact. Wear gloves (tested to EN374) if hand contact with substance likely. Clean up contamination/spills as soon as they occur. Wash off any skin contamination immediately. Provide basic employee training to prevent/minimise exposures and to report any skin problems that may develop. Use suitable eye protection.

3. Exposure estimation (Environment 1)

Assessment method	Used EUSES model.
Environmental exposure	STP: Exposure 5.65 mg/l, PNEC 580 mg/l, RCR 0.0097 Fresh water: Exposure 0.0000264 mg/l, PNEC 0.96 mg/l, RCR 0.0000275 Soil: Exposure 0.00119 mg/kg, PNEC 0.63 mg/kg, RCR 0.00189 Marine water: Exposure 0.00000224 mg/l, PNEC 0.79 mg/l, RCR 0.000002835

3. Exposure estimation (Health 1)

Assessment method	ECETOC TRA v2.0 Worker
Exposure	Worker - inhalation: Exposure 96.04 mg/m³, DNEL 950 mg/m³, RCR 0.101 Worker - dermal: Exposure 13.71 mg/kg/day, DNEL 343 mg/kg/day, RCR 0.040 Worker - all relevant routes: Exposure 27.43 mg/kg/day, DNEL 343 mg/kg/day, RCR 0.080 Worst case assumption

Exposure scenario
Distribution of Ethanol

Identification

Product name	Ethanol
REACH registration number	01-2119457610-43-XXXX
CAS number	64-17-5
EC number	200-578-6
EU index number	603-002-00-5
Supplier	Univar Solutions UK Ltd Aquarius House 6 Mid Point Business Park Bradford BD3 7AY +44 1274 267300 +44 1274 267306 SDS.EMEA@univarsolutions.com

1. Title of exposure scenario

Main title	Distribution of Ethanol
Process scope	Loading (including marine vessel/barge, rail/road car and IBC loading) and repacking (including drums and small packs) of substance, including its sampling, storage, unloading distribution and associated laboratory activities.
Main sector	SU3 Industrial uses
Sector of use	SU8 Manufacture of bulk, large-scale chemicals (including petroleum products) SU9 Manufacture of fine chemicals

Environment

Environmental release category	ERC2 Formulation into mixture

Worker

Process category	PROC8a Transfer of substance or mixture (charging and discharging) at non-dedicated facilities PROC8b Transfer of substance or mixture (charging and discharging) at dedicated facilities PROC9 Transfer of substance or mixture into small containers (dedicated filling line, including weighing)

2. Conditions of use affecting exposure (Industrial - Environment 1)

Product characteristics

Physical state	Liquid
Concentration details	Covers concentrations up to 100 %.

Distribution of Ethanol

Amounts used

Annual amount per site: 75000 tonnes
Annual amount used in the EU: 3800000 tonnes

Frequency and duration of use

Continuous.
Emission days: 300 days/year

Environmental factors not influenced by risk management measures

Dilution Receiving water dilution (fresh or marine): 18000 m³/day

Risk management measures

Good practice Carefully handle the substance to minimise releases.

Technical measures Bund storage facilities to prevent soil and water pollution in the event of spillage. When not in use, keep containers tightly closed. Avoid discharge into drains and the aquatic environment.

STP type Municipal STP.

STP details Assumed domestic sewage treatment plant flow: 2000 m³/day
Removal efficiency (total): 90%

Conditions and measures related to external treatment of waste for disposal

Sludge treatment Sludge is disposed of or recovered.

Disposal method Contain and dispose of waste according to local regulations. Incineration, disposal or recycling at specific offsite provider.

2. Conditions of use affecting exposure (Workers - Health 1)

Product characteristics

Physical state Liquid

Vapour pressure 5.73 kPa @ 20°C

Concentration details Covers concentrations up to 100 %.

Frequency and duration of use

Covers daily exposures up to 8 hours (unless stated differently).

Human factors not influenced by risk management

Potentially exposed body parts Both hands. Covers skin contact area up to 960 cm².

Other given operational conditions affecting workers exposure

Setting Indoor/outdoor use.

Temperature Assumes activities are at ambient temperature (unless stated differently).

Ventilation rate 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.

Technical conditions and measures at process level (source) to prevent release

Technical protective measures Ensure material transfers are under containment or extract ventilation. Provide extract ventilation at the points where emissions occur.

Organisational measures to prevent/limit releases, dispersion and exposure

Organisational measures Assumes a good basic standard of occupational hygiene is implemented.

Distribution of Ethanol

Risk management measures

Avoid direct skin contact with product. Identify potential areas for indirect skin contact. Wear gloves (tested to EN374) if hand contact with substance likely. Clean up contamination/spills as soon as they occur. Wash off any skin contamination immediately. Provide basic employee training to prevent/minimise exposures and to report any skin problems that may develop. Use suitable eye protection.

3. Exposure estimation (Environment 1)

Assessment method ECETOC TRA v2.0 Environment

Environmental exposure STP: Exposure 4.66 mg/l, PNEC 580 mg/l, RCR 0.0080
Fresh water: Exposure 0.52 mg/l, PNEC 0.96 mg/l, RCR 0.542
Soil: Exposure 0.007 mg/kg, PNEC 0.63 mg/kg, RCR 0.00111
Marine water: Exposure 0.0515 mg/l, PNEC 0.79 mg/l, RCR 0.0652

3. Exposure estimation (Health 1)

Assessment method ECETOC TRA v2.0 Worker

Exposure Worker - inhalation: Exposure 96.04 mg/m³, DNEL 950 mg/m³, RCR 0.101
Worker - dermal: Exposure 13.71 mg/kg/day, DNEL 343 mg/kg/day, RCR 0.040
Worker - all relevant routes: Exposure 27.43 mg/kg/day, DNEL 343 mg/kg/day, RCR 0.080

Worst case assumption

Exposure scenario
Industrial formulation and (re)packing of Ethanol and it's mixtures

Identification

Product name	Ethanol
REACH registration number	01-2119457610-43-XXXX
CAS number	64-17-5
EC number	200-578-6
EU index number	603-002-00-5
Supplier	Univar Solutions UK Ltd Aquarius House 6 Mid Point Business Park Bradford BD3 7AY +44 1274 267300 +44 1274 267306 SDS.EMEA@univarsolutions.com

1. Title of exposure scenario

Main title	Industrial formulation and (re)packing of Ethanol and it's mixtures
Process scope	Formulation of the substance and its mixtures in batch or continuous operations within closed or contained systems, including incidental exposures during storage, materials transfers, mixing, maintenance, sampling and associated laboratory activities.
Main sector	SU3 Industrial uses
Sector of use	SU10 Formulation [mixing] of preparations and/or re-packaging

Environment

Environmental release category	ERC2 Formulation into mixture

Worker

Process category	PROC3 Manufacture or formulation in the chemical industry in closed batch processes with occasional controlled exposure or processes with equivalent containment condition PROC5 Mixing or blending in batch processes PROC8a Transfer of substance or mixture (charging and discharging) at non-dedicated facilities PROC8b Transfer of substance or mixture (charging and discharging) at dedicated facilities PROC9 Transfer of substance or mixture into small containers (dedicated filling line, including weighing) PROC14 Tabletting, compression, extrusion, pelletisation, granulation

2. Conditions of use affecting exposure (Industrial - Environment 1)

Product characteristics

Industrial formulation and (re)packing of Ethanol and it's mixtures

Physical state	Liquid
Concentration details	Covers concentrations up to 100 %.

Amounts used

Annual amount per site: 280000 tonnes
Annual amount used in the EU: 3800000 tonnes

Frequency and duration of use

Continuous.
Emission days: 300 days/year

Environmental factors not influenced by risk management measures

Dilution	Receiving water dilution (fresh or marine): 18000 m³/day

Risk management measures

Good practice	Carefully handle the substance to minimise releases.
Technical measures	Bund storage facilities to prevent soil and water pollution in the event of spillage. When not in use, keep containers tightly closed. Avoid discharge into drains and the aquatic environment.
STP type	Municipal STP.
STP details	Assumed domestic sewage treatment plant flow: 2000 m³/day Removal efficiency (total): 90%

Conditions and measures related to external treatment of waste for disposal

Sludge treatment	Sludge is disposed of or recovered.
Disposal method	Contain and dispose of waste according to local regulations. Incineration, disposal or recycling at specific offsite provider.

2. Conditions of use affecting exposure (Workers - Health 1)

Product characteristics

Physical state	Liquid
Vapour pressure	5.73 kPa @ 20°C
Concentration details	Covers concentrations up to 100 %.

Frequency and duration of use

Covers daily exposures up to 8 hours (unless stated differently).

Human factors not influenced by risk management

Potentially exposed body parts	PROC3 Manufacture or formulation in the chemical industry in closed batch processes with occasional controlled exposure or processes with equivalent containment condition Palm of both hands. Covers skin contact area up to 480 cm². PROC5 Mixing or blending in batch processes PROC8a Transfer of substance or mixture (charging and discharging) at non-dedicated facilities PROC8b Transfer of substance or mixture (charging and discharging) at dedicated facilities PROC9 Transfer of substance or mixture into small containers (dedicated filling line, including weighing) PROC14 Tabletting, compression, extrusion, pelletisation, granulation Both hands. Covers skin contact area up to 960 cm².

Other given operational conditions affecting workers exposure

Setting	Indoor.
Temperature	Assumes activities are at ambient temperature (unless stated differently).

Industrial formulation and (re)packing of Ethanol and it's mixtures

Ventilation rate 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.

Technical conditions and measures at process level (source) to prevent release

Technical protective measures Ensure material transfers are under containment or extract ventilation. Provide extract ventilation at the points where emissions occur.

Organisational measures to prevent/limit releases, dispersion and exposure

Organisational measures Assumes a good basic standard of occupational hygiene is implemented.

Risk management measures

Avoid direct skin contact with product. Identify potential areas for indirect skin contact. Wear gloves (tested to EN374) if hand contact with substance likely. Clean up contamination/spills as soon as they occur. Wash off any skin contamination immediately. Provide basic employee training to prevent/minimise exposures and to report any skin problems that may develop. Use suitable eye protection.

3. Exposure estimation (Environment 1)

Assessment method ECETOC TRA v2.0 Environment

Environmental exposure STP: Exposure 1.73 mg/l, PNEC 580 mg/l, RCR 0.00298
Fresh water: Exposure 0.185 mg/l, PNEC 0.96 mg/l, RCR 0.193
Soil: Exposure 0.0117 mg/kg, PNEC 0.63 mg/kg, RCR 0.0186
Marine water: Exposure 0.0186 mg/l, PNEC 0.79 mg/l, RCR 0.0235

3. Exposure estimation (Health 1)

Assessment method ECETOC TRA v2.0 Worker

Exposure Worker - inhalation: Exposure 96.04 mg/m³, DNEL 950 mg/m³, RCR 0.101
Worker - dermal: Exposure 13.71 mg/kg/day, DNEL 343 mg/kg/day, RCR 0.040
Worker - all relevant routes: Exposure 27.43 mg/kg/day, DNEL 343 mg/kg/day, RCR 0.080

Worst case assumption

Exposure scenario
Industrial use of Ethanol in non-spray applications

Identification

Product name	Ethanol
REACH registration number	01-2119457610-43-XXXX
CAS number	64-17-5
EC number	200-578-6
EU index number	603-002-00-5
Supplier	Univar Solutions UK Ltd Aquarius House 6 Mid Point Business Park Bradford BD3 7AY +44 1274 267300 +44 1274 267306 SDS.EMEA@univarsolutions.com

1. Title of exposure scenario

Main title	Industrial use of Ethanol in non-spray applications Dipping, immersion and pouring Treatment by dipping and pouring Roller, spreader, flow application
Main sector	SU3 Industrial uses

Environment

Environmental release category	ERC4 Use of non-reactive processing aid at industrial site (no inclusion into or onto article)

Worker

Process category	PROC10 Roller application or brushing PROC13 Treatment of articles by dipping and pouring.

2. Conditions of use affecting exposure (Industrial - Environment 1)

Product characteristics

Physical state	Liquid
Concentration details	Covers concentrations up to 100 %.

Amounts used

Regional use tonnage: 2750 tonnes/year
Annual amount used in the EU: 27500 tonnes

Frequency and duration of use

Industrial use of Ethanol in non-spray applications

Continuous.
Emission days: 300 days/year

Environmental factors not influenced by risk management measures

Dilution Receiving water dilution (fresh or marine): 18000 m³/day

Risk management measures

Good practice Carefully handle the substance to minimise releases.

Technical measures Bund storage facilities to prevent soil and water pollution in the event of spillage. When not in use, keep containers tightly closed. Avoid discharge into drains and the aquatic environment.

STP type Municipal STP.

STP details Assumed domestic sewage treatment plant flow: 2000 m³/day
Removal efficiency (total): 90%

Conditions and measures related to external treatment of waste for disposal

Sludge treatment Sludge is disposed of or recovered.

Disposal method Contain and dispose of waste according to local regulations. Incineration, disposal or recycling at specific offsite provider.

2. Conditions of use affecting exposure (Workers - Health 1)

Product characteristics

Physical state Liquid

Vapour pressure 5.73 kPa @ 20°C

Concentration details Covers concentrations up to 100 %.

Frequency and duration of use

Covers daily exposures up to 8 hours (unless stated differently).

Human factors not influenced by risk management

Potentially exposed body parts PROC13 Treatment of articles by dipping and pouring. Palm of both hands. Covers skin contact area up to 480 cm².
PROC10 Roller application or brushing Both hands. Covers skin contact area up to 960 cm².

Other given operational conditions affecting workers exposure

Setting Indoor/outdoor use.

Temperature Assumes activities are at ambient temperature (unless stated differently).

Ventilation rate 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. , or: Ensure operation is undertaken outdoors.

Technical conditions and measures at process level (source) to prevent release

Technical protective measures Ensure material transfers are under containment or extract ventilation. Provide extract ventilation at the points where emissions occur.

Organisational measures to prevent/limit releases, dispersion and exposure

Organisational measures Assumes a good basic standard of occupational hygiene is implemented.

Risk management measures

Industrial use of Ethanol in non-spray applications

Avoid direct skin contact with product. Identify potential areas for indirect skin contact. Wear gloves (tested to EN374) if hand contact with substance likely. Clean up contamination/spills as soon as they occur. Wash off any skin contamination immediately. Provide basic employee training to prevent/minimise exposures and to report any skin problems that may develop. Use suitable eye protection.

3. Exposure estimation (Environment 1)

Assessment method

ECETOC TRA v2.0 Environment

Environmental exposure

STP: Exposure 0.285 mg/l, PNEC 580 mg/l, RCR 0.000491
Fresh water: Exposure 0.039 mg/l, PNEC 0.96 mg/l, RCR 0.0406
Soil: Exposure 0.0091 mg/kg, PNEC 0.63 mg/kg, RCR 0.0144
Marine water: Exposure 0.0039 mg/l, PNEC 0.79 mg/l, RCR 0.00494

3. Exposure estimation (Health 1)

Assessment method

ECETOC TRA v2.0 Worker

Exposure

Worker - inhalation: Exposure 96.04 mg/m³, DNEL 950 mg/m³, RCR 0.101
Worker - dermal: Exposure 27.43 mg/kg/day, DNEL 343 mg/kg/day, RCR 0.080
Worker - all relevant routes: Exposure 41.15 mg/kg/day, DNEL 343 mg/kg/day, RCR 0.120

Worst case assumption

Exposure scenario
Industrial use of Ethanol in spray applications

Identification

Product name	Ethanol
REACH registration number	01-2119457610-43-XXXX
CAS number	64-17-5
EC number	200-578-6
EU index number	603-002-00-5
Supplier	Univar Solutions UK Ltd Aquarius House 6 Mid Point Business Park Bradford BD3 7AY +44 1274 267300 +44 1274 267306 SDS.EMEA@univarsolutions.com

1. Title of exposure scenario

Main title	Industrial use of Ethanol in spray applications
	Spraying
Main sector	SU3 Industrial uses

Environment

Environmental release category	ERC4 Use of non-reactive processing aid at industrial site (no inclusion into or onto article)

Worker

Process category	PROC7 Industrial spraying

2. Conditions of use affecting exposure (Industrial - Environment 1)

Product characteristics

Physical state	Liquid
Concentration details	Covers concentrations up to 25 %.

Amounts used

Regional use tonnage: 2750 tonnes/year
Annual amount used in the EU: 27500 tonnes

Frequency and duration of use

Continuous.
Emission days: 300 days/year

Industrial use of Ethanol in spray applications

Environmental factors not influenced by risk management measures

Dilution	Receiving water dilution (fresh or marine): 18000 m³/day

Risk management measures

Good practice	Carefully handle the substance to minimise releases.
Technical measures	Bund storage facilities to prevent soil and water pollution in the event of spillage. When not in use, keep containers tightly closed. Avoid discharge into drains and the aquatic environment.
STP type	Municipal STP.
STP details	Assumed domestic sewage treatment plant flow: 2000 m³/day Removal efficiency (total): 90%

Conditions and measures related to external treatment of waste for disposal

Sludge treatment	Sludge is disposed of or recovered.
Disposal method	Contain and dispose of waste according to local regulations. Incineration, disposal or recycling at specific offsite provider.

2. Conditions of use affecting exposure (Workers - Health 1)

Product characteristics

Physical state	Liquid
Vapour pressure	5.73 kPa @ 20°C
Concentration details	Covers concentrations up to 25 %.

Frequency and duration of use

Covers daily exposures up to 8 hours (unless stated differently).

Human factors not influenced by risk management

Potentially exposed body parts	Hands and forearms. Covers skin contact area up to 1500 cm².

Other given operational conditions affecting workers exposure

Setting	Indoor.
Temperature	Assumes activities are at ambient temperature (unless stated differently).
Ventilation rate	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.

Technical conditions and measures at process level (source) to prevent release

Technical protective measures	Ensure material transfers are under containment or extract ventilation. Provide extract ventilation at the points where emissions occur.

Organisational measures to prevent/limit releases, dispersion and exposure

Organisational measures	Assumes a good basic standard of occupational hygiene is implemented.

Risk management measures

Industrial use of Ethanol in spray applications

Avoid direct skin contact with product. Identify potential areas for indirect skin contact. Wear gloves (tested to EN374) if hand contact with substance likely. Clean up contamination/spills as soon as they occur. Wash off any skin contamination immediately. Provide basic employee training to prevent/minimise exposures and to report any skin problems that may develop.
Use suitable eye protection.
Wear a respirator conforming to EN140 with Type A filter or better.
, or:
Carry out in a vented booth provided with laminar airflow.

3. Exposure estimation (Environment 1)

Assessment method	ECETOC TRA v2.0 Environment
Environmental exposure	STP: Exposure 0.285 mg/l, PNEC 580 mg/l, RCR 0.000491 Fresh water: Exposure 0.039 mg/l, PNEC 0.96 mg/l, RCR 0.0406 Soil: Exposure 0.0091 mg/kg, PNEC 0.63 mg/kg, RCR 0.0144 Marine water: Exposure 0.0039 mg/l, PNEC 0.79 mg/l, RCR 0.00494

3. Exposure estimation (Health 1)

Assessment method	ECETOC TRA v2.0 Worker
Exposure	Worker - inhalation: Exposure 480.21 mg/m³, DNEL 950 mg/m³, RCR 0.505 Worker - dermal: Exposure 42.86 mg/kg/day, DNEL 343 mg/kg/day, RCR 0.125 Worker - all relevant routes: Exposure 111.46 mg/kg/day, DNEL 343 mg/kg/day, RCR 0.325 Worst case assumption

Exposure scenario
Professional use of Ethanol in non-spray applications

Identification

Product name	Ethanol
REACH registration number	01-2119457610-43-XXXX
CAS number	64-17-5
EC number	200-578-6
EU index number	603-002-00-5
Supplier	Univar Solutions UK Ltd Aquarius House 6 Mid Point Business Park Bradford BD3 7AY +44 1274 267300 +44 1274 267306 SDS.EMEA@univarsolutions.com

1. Title of exposure scenario

Main title	Professional use of Ethanol in non-spray applications Dipping, immersion and pouring Treatment by dipping and pouring Roller, spreader, flow application
Main sector	SU22 Professional uses

Environment

Environmental release category	ERC8a Widespread use of non-reactive processing aid (no inclusion into or onto article, indoor) ERC8d Widespread use of non-reactive processing aid (no inclusion into or onto article, outdoor)

Worker

Process category	PROC10 Roller application or brushing PROC13 Treatment of articles by dipping and pouring. PROC14 Tabletting, compression, extrusion, pelletisation, granulation PROC19 Manual activities involving hand contact

2. Conditions of use affecting exposure (Industrial - Environment 1)

Product characteristics

Physical state	Liquid
Concentration details	Covers concentrations up to 100 %.

Amounts used

Annual amount for wide dispersive uses: 10000 tonnes

Professional use of Ethanol in non-spray applications

Frequency and duration of use

Continuous.
Emission days: 365 days/year

Environmental factors not influenced by risk management measures

Dilution Receiving water dilution (fresh or marine): 18000 m³/day

Risk management measures

Good practice Carefully handle the substance to minimise releases.

Technical measures No specific measures identified.

STP type Municipal STP.

STP details Assumed domestic sewage treatment plant flow: 2000 m³/day
Removal efficiency (total): 90%

Conditions and measures related to external treatment of waste for disposal

Sludge treatment Sludge is disposed of or recovered.

Disposal method Contain and dispose of waste according to local regulations.

2. Conditions of use affecting exposure (Workers - Health 1)

Product characteristics

Physical state Liquid

Vapour pressure 5.73 kPa @ 20°C

Concentration details Covers concentrations up to 100 %.

Frequency and duration of use

Covers daily exposures up to 8 hours (unless stated differently).

Human factors not influenced by risk management

Potentially exposed body parts PROC13 Treatment of articles by dipping and pouring. PROC14 Tabletting, compression, extrusion, pelletisation, granulation Palm of both hands. Covers skin contact area up to 480 cm².
PROC10 Roller application or brushing Both hands. Covers skin contact area up to 960 cm².
PROC19 Manual activities involving hand contact Hands and forearms. Covers skin contact area up to 1980 cm².

Other given operational conditions affecting workers exposure

Setting Indoor/outdoor use.

Temperature Assumes activities are at ambient temperature (unless stated differently).

Ventilation rate 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. , or: Ensure operation is undertaken outdoors.

Technical conditions and measures at process level (source) to prevent release

Technical protective measures No specific risk management measure identified beyond those operational conditions stated.

Organisational measures to prevent/limit releases, dispersion and exposure

Organisational measures Assumes a good basic standard of occupational hygiene is implemented.
PROC19 Manual activities involving hand contact Limit the substance content in the product to 25%. , or: Avoid carrying out operation for more than 4 hours.

Professional use of Ethanol in non-spray applications

Risk management measures

PROC19 Manual activities involving hand contact
Limit the substance content in the product to 25%.
, or:
Wear suitable gloves (tested to EN374) and eye protection.

3. Exposure estimation (Environment 1)

Assessment method	ECETOC TRA v2.0 Environment
Environmental exposure	STP: Exposure 0.34 mg/l, PNEC 580 mg/l, RCR 0.000586 Fresh water: Exposure 0.045 mg/l, PNEC 0.96 mg/l, RCR 0.0521 Soil: Exposure 0.0003 mg/kg, PNEC 0.63 mg/kg, RCR 0.000476 Marine water: Exposure 0.0044 mg/l, PNEC 0.79 mg/l, RCR 0.00557

3. Exposure estimation (Health 1)

Assessment method	ECETOC TRA v2.0 Worker
Exposure	Worker - inhalation: Exposure 115.25 mg/m³, DNEL 950 mg/m³, RCR 0.121 Worker - dermal: Exposure 84.86 mg/kg/day, DNEL 343 mg/kg/day, RCR 0.247 Worker - all relevant routes: Exposure 101.32 mg/kg/day, DNEL 343 mg/kg/day, RCR 0.295 Worst case assumption

Exposure scenario
Professional use of Ethanol in spray applications

Identification

Product name	Ethanol
REACH registration number	01-2119457610-43-XXXX
CAS number	64-17-5
EC number	200-578-6
EU index number	603-002-00-5
Supplier	Univar Solutions UK Ltd Aquarius House 6 Mid Point Business Park Bradford BD3 7AY +44 1274 267300 +44 1274 267306 SDS.EMEA@univarsolutions.com

1. Title of exposure scenario

Main title	Professional use of Ethanol in spray applications
	Spraying
Main sector	SU22 Professional uses

Environment

Environmental release category	ERC8a Widespread use of non-reactive processing aid (no inclusion into or onto article, indoor) ERC8d Widespread use of non-reactive processing aid (no inclusion into or onto article, outdoor)

Worker

Process category	PROC11 Non industrial spraying

2. Conditions of use affecting exposure (Industrial - Environment 1)

Product characteristics

Physical state	Liquid
Concentration details	Covers concentrations up to 25 %.

Amounts used

Annual amount for wide dispersive uses: 10000 tonnes

Frequency and duration of use

Continuous.
Emission days: 365 days/year

Professional use of Ethanol in spray applications

Environmental factors not influenced by risk management measures

Dilution	Receiving water dilution (fresh or marine): 18000 m³/day

Risk management measures

Good practice	Carefully handle the substance to minimise releases.
Technical measures	Avoid discharge into drains and the aquatic environment.
STP type	Municipal STP.
STP details	Assumed domestic sewage treatment plant flow: 2000 m³/day Removal efficiency (total): 90%

Conditions and measures related to external treatment of waste for disposal

Sludge treatment	Sludge is disposed of or recovered.
Disposal method	Contain and dispose of waste according to local regulations.

2. Conditions of use affecting exposure (Workers - Health 1)

Product characteristics

Physical state	Liquid
Vapour pressure	5.73 kPa @ 20°C
Concentration details	Covers concentrations up to 25 %.

Frequency and duration of use

Covers daily exposures up to 8 hours (unless stated differently).

Human factors not influenced by risk management

Potentially exposed body parts	Hands and forearms. Covers skin contact area up to 1500 cm².

Other given operational conditions affecting workers exposure

Setting	Indoor/outdoor use.
Temperature	Assumes activities are at ambient temperature (unless stated differently).
Ventilation rate	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.

Organisational measures to prevent/limit releases, dispersion and exposure

Organisational measures	Assumes a good basic standard of occupational hygiene is implemented. Avoid carrying out operation for more than 4 hours. , or: Limit the substance content in the product to 5%.

Risk management measures

Avoid direct skin contact with product. Identify potential areas for indirect skin contact. Wear gloves (tested to EN374) if hand contact with substance likely. Clean up contamination/spills as soon as they occur. Wash off any skin contamination immediately. Provide basic employee training to prevent/minimise exposures and to report any skin problems that may develop.
Use suitable eye protection.
Wear a respirator conforming to EN140 with Type A filter or better.
, or:
Provide enhanced general ventilation by mechanical means.
, or:
Limit the substance content in the product to 25%.

Professional use of Ethanol in spray applications

3. Exposure estimation (Environment 1)

Assessment method	ECETOC TRA v2.0 Environment
Environmental exposure	STP: Exposure 0.34 mg/l, PNEC 580 mg/l, RCR 0.000690 Fresh water: Exposure 0.045 mg/l, PNEC 0.96 mg/l, RCR 0.0469 Soil: Exposure 0.0003 mg/kg, PNEC 0.63 mg/kg, RCR 0.000476 Marine water: Exposure 0.0044 mg/l, PNEC 0.79 mg/l, RCR 0.00557

3. Exposure estimation (Health 1)

Assessment method	ECETOC TRA v2.0 Worker
Exposure	Worker - inhalation: Exposure 672.29 mg/m³, DNEL 950 mg/m³, RCR 0.708 Worker - dermal: Exposure 21.43 mg/kg/day, DNEL 343 mg/kg/day, RCR 0.0625 Worker - all relevant routes: Exposure 117.47 mg/kg/day, DNEL 343 mg/kg/day, RCR 0.342 Worst case assumption

Exposure scenario
Use of Ethanol in consumer products (<50g per event)

Identification

Product name	Ethanol
REACH registration number	01-2119457610-43-XXXX
CAS number	64-17-5
EC number	200-578-6
EU index number	603-002-00-5
Supplier	Univar Solutions UK Ltd Aquarius House 6 Mid Point Business Park Bradford BD3 7AY +44 1274 267300 +44 1274 267306 SDS.EMEA@univarsolutions.com

1. Title of exposure scenario

Main title	Use of Ethanol in consumer products (<50g per event)
Process scope	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.
Product category	PC1 Adhesives, sealants. PC3 Air care products. PC8 Biocidal products PC12 Lawn and garden preparations (- fertilizers). PC14 Metal surface treatment products PC15 Non-metal-surface treatment products. PC18 Ink and toners. PC23 Leather treatment products PC24 Lubricants, greases and release products. PC27 Plant protection products. PC28 Perfumes, fragrances. PC30 Photochemicals. PC31 Polishes and wax blends. PC34 Textile dyes and impregnating products PC39 Cosmetics, personal care.
Main sector	SU21 Consumer uses

Environment

Environmental release category	ERC8a Widespread use of non-reactive processing aid (no inclusion into or onto article, indoor) ERC8d Widespread use of non-reactive processing aid (no inclusion into or onto article, outdoor)

Use of Ethanol in consumer products (<50g per event)

2. Conditions of use affecting exposure (Non-industrial - Environment 1)

Product characteristics

Physical state Liquid

Amounts used

Annual amount for wide dispersive uses: 10000 tonnes

Frequency and duration of use

Emission days: 365 days/year

Environmental factors not influenced by risk management measures

Dilution Receiving surface water flow: 18000 m³/day

Other factors Covers use at ambient temperatures.

Risk management measures

Good practice Carefully pour from containers.

Technical measures Do not discharge into drains or watercourses or onto the ground.

STP type Municipal STP.

STP details Assumed domestic sewage treatment plant flow: 2000 m³/day
Removal efficiency fraction (offsite; STP): 90%

2. Conditions of use affecting exposure (Non-industrial - Health 1)

Product characteristics

Physical state Liquid

Concentration details PC24 Lubricants, greases and release products. PC31 Polishes and wax blends. Concentration of substance in product: <1%
PC5 Artists supply and hobby preparations. PC10 Building and construction preparations not covered elsewhere. PC22 Lawn and garden preparations, including fertilizers. PC23 Leather treatment products PC27 Plant protection products. PC30 Photochemicals. PC34 Textile dyes and impregnating products Concentration of substance in product: 1 - 5%
PC1 Adhesives, sealants. PC8 Biocidal products PC14 Metal surface treatment products PC15 Non-metal-surface treatment products. PC18 Ink and toners. Concentration of substance in product: 5 - 25%
PC3 Air care products. PC28 Perfumes, fragrances. Concentration of substance in product: >25%

Amounts used

Amount per use: <50 g

Frequency and duration of use

Covers daily exposure up to 4hours

Human factors not influenced by risk management

Potentially exposed body parts Palm of one hand. Covers skin contact area up to 210 cm².

Other given operational conditions affecting Non-industrial exposure

Setting Indoor/outdoor use.

Temperature Covers use at ambient temperatures.

Use of Ethanol in consumer products (<50g per event)

Room size Use in room with a minimum volume of 20 m³.

Other given operational conditions affecting Non-industrial exposure

Consumer information Avoid inhalation of vapours and contact with skin and eyes.

No specific risk management measure identified beyond those operational conditions stated.

3. Exposure estimation (Environment 1)

Assessment method ECETOC TRA v2.0 Environment

Environmental exposure STP: Exposure 0.340 mg/l, PNEC 580 mg/l, RCR 0.000690
Fresh water: Exposure 0.0447 mg/l, PNEC 0.96 mg/l, RCR 0.0466
Soil: Exposure 0.0003 mg/kg, PNEC 0.63 mg/kg, RCR 0.000476
Marine water: Exposure 0.0044 mg/l, PNEC 0.79 mg/l, RCR 0.00557

3. Exposure estimation (Health 1)

Assessment method ConsExpo v4.1

Exposure Consumer - dermal: Exposure 2.87 mg/kg/day, DNEL 206 mg/kg/day, RCR 0.0139
Consumer - inhalation: Exposure 10.31 mg/m³, DNEL 144 mg/m³, RCR 0.0716

Worst case assumption

Exposure scenario
Consumer use of Ethanol in enclosed systems

Identification

Product name	Ethanol
REACH registration number	01-2119457610-43-XXXX
CAS number	64-17-5
EC number	200-578-6
EU index number	603-002-00-5
Supplier	Univar Solutions UK Ltd Aquarius House 6 Mid Point Business Park Bradford BD3 7AY +44 1274 267300 +44 1274 267306 SDS.EMEA@univarsolutions.com

1. Title of exposure scenario

Main title	Consumer use of Ethanol in enclosed systems
Process scope	Use of sealed items containing functional fluids e.g. transfer oils, hydraulic fluids, refrigerants.
Product category	PC16 Heat transfer fluids.
Main sector	SU21 Consumer uses

Environment

Environmental release category	ERC9a Widespread use of functional fluid (indoor) ERC9b Widespread use of functional fluid (outdoor)

2. Conditions of use affecting exposure (Non-industrial - Environment 1)

Product characteristics

Physical state	Liquid

Amounts used

Annual amount for wide dispersive uses: 10000 tonnes

Frequency and duration of use

Emission days: 365 days/year

Environmental factors not influenced by risk management measures

Dilution	Receiving surface water flow: 18000 m³/day
Other factors	Covers use at ambient temperatures.

Risk management measures

Consumer use of Ethanol in enclosed systems

Good practice	Carefully pour from containers.
Technical measures	Handle product within a closed system. Do not discharge into drains or watercourses or onto the ground.
STP type	Municipal STP.
STP details	Assumed domestic sewage treatment plant flow: 2000 m³/day

Conditions and measures related to external treatment of waste for disposal

Not applicable as there is no release to wastewater.

2. Conditions of use affecting exposure (Non-industrial - Health 1)

Product characteristics

Physical state	Liquid
Concentration details	Covers concentrations up to 100 %.

Amounts used

Amount per use: <50 g

Frequency and duration of use

Covers frequency up to 1 - 5 days/year, , .

Other given operational conditions affecting Non-industrial exposure

Temperature	Covers use at ambient temperatures.
	Handle substance within a closed system.

Other given operational conditions affecting Non-industrial exposure

Consumer information	Avoid inhalation of vapours and contact with skin and eyes. Keep container tightly closed.
	No specific risk management measure identified beyond those operational conditions stated.

3. Exposure estimation (Environment 1)

Assessment method	ECETOC TRA v2.0 Environment
Environmental exposure	STP: Exposure 0.017 mg/l, PNEC 580 mg/l, RCR 0.0000293 Fresh water: Exposure 0.0155 mg/l, PNEC 0.96 mg/l, RCR 0.0161 Soil: Exposure 0.00013 mg/kg, PNEC 0.63 mg/kg, RCR 0.000206 Marine water: Exposure 0.00145 mg/l, PNEC 0.79 mg/l, RCR 0.00184

3. Exposure estimation (Health 1)

Assessment method	ConsExpo v4.1
Exposure	Consumer - dermal: Exposure 0.85 mg/kg/day, DNEL 206 mg/kg/day, RCR 0.00413 Consumer - inhalation: Exposure 0.04 mg/m³, DNEL 144 mg/m³, RCR 0.000278
	Worst case assumption

Exposure scenario
Consumer use of Ethanol in coatings and paints

Identification

Product name	Ethanol
REACH registration number	01-2119457610-43-XXXX
CAS number	64-17-5
EC number	200-578-6
EU index number	603-002-00-5
Supplier	Univar Solutions UK Ltd Aquarius House 6 Mid Point Business Park Bradford BD3 7AY +44 1274 267300 +44 1274 267306 SDS.EMEA@univarsolutions.com

1. Title of exposure scenario

Main title	Consumer use of Ethanol in coatings and paints
Product category	PC9a Coatings and paints, thinners, paint removers. PC9c Finger paints.
Main sector	SU21 Consumer uses

Environment

Environmental release category	ERC8a Widespread use of non-reactive processing aid (no inclusion into or onto article, indoor) ERC8d Widespread use of non-reactive processing aid (no inclusion into or onto article, outdoor)

2. Conditions of use affecting exposure (Non-industrial - Environment 1)

Product characteristics

Physical state	Liquid

Amounts used

Annual amount for wide dispersive uses: 10000 tonnes

Frequency and duration of use

Emission days: 365 days/year

Environmental factors not influenced by risk management measures

Dilution	Receiving surface water flow: 18000 m³/day
Other factors	Covers use at ambient temperatures.

Consumer use of Ethanol in coatings and paints

Risk management measures

Technical measures	No specific risk management measure identified beyond those operational conditions stated.
STP type	Municipal STP.
STP details	Assumed domestic sewage treatment plant flow: 2000 m³/day Removal efficiency (total): 90%

2. Conditions of use affecting exposure (Non-industrial - Health 1)

Product characteristics

Physical state	Liquid
Concentration details	Covers concentrations up to 15 %.

Amounts used

Amount per use: 50 - 250 g

Frequency and duration of use

Covers frequency up to 1 - 5 days/year, , .
Application duration: 20 - 60 minutes

Human factors not influenced by risk management

Potentially exposed body parts	Palm of one hand. Covers skin contact area up to 428 cm².

Other given operational conditions affecting Non-industrial exposure

Setting	Indoor/outdoor use.
Temperature	Covers use at ambient temperatures.
Room size	Use in room with a minimum volume of 20 m³.
Ventilation rate	Open windows during application to ensure natural ventilation.

3. Exposure estimation (Environment 1)

Assessment method	ECETOC TRA v2.0 Environment
Environmental exposure	STP: Exposure 0.340 mg/l, PNEC 580 mg/l, RCR 0.000586 Fresh water: Exposure 0.0447 mg/l, PNEC 0.96 mg/l, RCR 0.0466 Soil: Exposure 0.0003 mg/kg, PNEC 0.63 mg/kg, RCR 0.000476 Marine water: Exposure 0.0044 mg/l, PNEC 0.79 mg/l, RCR 0.00557

3. Exposure estimation (Health 1)

Assessment method	ConsExpo v4.1
Exposure	Consumer - dermal, short-term - local and systemic: Exposure 21.44 mg/kg/day, DNEL 206 mg/kg/day, RCR 0.104 Consumer - dermal, long-term - systemic: Exposure 0.30 mg/m³, DNEL 206 mg/m³, RCR 0.00146 Consumer - inhalation, short-term - local and systemic: Exposure 375 mg/m³, DNEL 950 mg/m³, RCR 0.395 Consumer - inhalation, long-term - systemic: Exposure 0.50 mg/m³, DNEL 144 mg/m³, RCR 0.00347 Worst case assumption

Exposure scenario
Consumer use of Ethanol in antifreeze, deicing and screenwash products

Identification

Product name	Ethanol
REACH registration number	01-2119457610-43-XXXX
CAS number	64-17-5
EC number	200-578-6
EU index number	603-002-00-5
Supplier	Univar Solutions UK Ltd Aquarius House 6 Mid Point Business Park Bradford BD3 7AY +44 1274 267300 +44 1274 267306 SDS.EMEA@univarsolutions.com

1. Title of exposure scenario

Main title	Consumer use of Ethanol in antifreeze, deicing and screenwash products
	De-icing and anti-icing applications
Product category	PC4 Anti-freeze and de-icing products.
Main sector	SU21 Consumer uses

Environment

Environmental release category	ERC8d Widespread use of non-reactive processing aid (no inclusion into or onto article, outdoor)

2. Conditions of use affecting exposure (Non-industrial - Environment 1)

Product characteristics

Physical state	Liquid

Amounts used

Annual amount for wide dispersive uses: 125000 tonnes

Frequency and duration of use

Emission days: 365 days/year

Environmental factors not influenced by risk management measures

Dilution	Receiving surface water flow: 18000 m³/day
Other factors	Covers use at ambient temperatures.

Risk management measures

Consumer use of Ethanol in antifreeze, deicing and screenwash products

Technical measures	No specific risk management measure identified beyond those operational conditions stated.
STP type	Municipal STP.
STP details	Assumed domestic sewage treatment plant flow: 2000 m³/day Removal efficiency (total): 90%

2. Conditions of use affecting exposure (Non-industrial - Health 1)

Product characteristics

Physical state	Liquid
Concentration details	Covers concentrations up to 100 %.

Amounts used

Amount per use: 1 - 50 g

Frequency and duration of use

Covers weekly exposure up to 5minutes

Human factors not influenced by risk management

Potentially exposed body parts	Covers skin contact area up to 214 cm².

Other given operational conditions affecting Non-industrial exposure

Setting	Indoor/outdoor use.
Temperature	Covers use at ambient temperatures.

Other given operational conditions affecting Non-industrial exposure

Consumer information	If risk of splashing, wear safety goggles or face shield.

3. Exposure estimation (Environment 1)

Assessment method	ECETOC TRA v2.0 Environment
Environmental exposure	STP: Exposure 0.0011 mg/l, PNEC 580 mg/l, RCR 0.00000190 Fresh water: Exposure 0.014 mg/l, PNEC 0.96 mg/l, RCR 0.0146 Soil: Exposure 0.00013 mg/kg, PNEC 0.63 mg/kg, RCR 0.000206 Marine water: Exposure 0.0013 mg/l, PNEC 0.79 mg/l, RCR 0.00165

3. Exposure estimation (Health 1)

Assessment method	ConsExpo v4.1
Exposure	Consumer - dermal: Exposure 17.87 mg/kg/day, DNEL 206 mg/kg/day, RCR 0.0867 Consumer - inhalation: Exposure 0.51 mg/m³, DNEL 144 mg/m³, RCR 0.00354
	Worst case assumption

Exposure scenario
Consumer use of Ethanol in washing and cleaning products

Identification

Product name	Ethanol
REACH registration number	01-2119457610-43-XXXX
CAS number	64-17-5
EC number	200-578-6
EU index number	603-002-00-5
Supplier	Univar Solutions UK Ltd Aquarius House 6 Mid Point Business Park Bradford BD3 7AY +44 1274 267300 +44 1274 267306 SDS.EMEA@univarsolutions.com

1. Title of exposure scenario

Main title	Consumer use of Ethanol in washing and cleaning products
Product category	PC35 Washing and cleaning products
Main sector	SU21 Consumer uses

Environment

Environmental release category	ERC8a Widespread use of non-reactive processing aid (no inclusion into or onto article, indoor) ERC8d Widespread use of non-reactive processing aid (no inclusion into or onto article, outdoor)

2. Conditions of use affecting exposure (Non-industrial - Environment 1)

Product characteristics

Physical state	Liquid

Amounts used

Annual amount for wide dispersive uses: 40000 tonnes

Frequency and duration of use

Emission days: 365 days/year

Environmental factors not influenced by risk management measures

Dilution	Receiving surface water flow: 18000 m³/day
Other factors	Covers use at ambient temperatures.

Consumer use of Ethanol in washing and cleaning products

Risk management measures

Technical measures	No specific risk management measure identified beyond those operational conditions stated.
STP type	Municipal STP.
STP details	Assumed domestic sewage treatment plant flow: 2000 m³/day Removal efficiency (total): 90%

2. Conditions of use affecting exposure (Non-industrial - Health 1)

Product characteristics

Physical state	Liquid
Concentration details	Covers concentrations up to 25 %.

Amounts used

Amount per use: <250 g

Frequency and duration of use

Covers daily exposure up to 60minutes

Other given operational conditions affecting Non-industrial exposure

Setting	Indoor/outdoor use.
Temperature	Covers use at ambient temperatures.
Ventilation rate	Covers use under typical household ventilation. Spraying Open windows during application to ensure natural ventilation.

3. Exposure estimation (Environment 1)

Assessment method	ECETOC TRA v2.0 Environment
Environmental exposure	STP: Exposure 0.681 mg/l, PNEC 580 mg/l, RCR 0.00117 Fresh water: Exposure 0.0818 mg/l, PNEC 0.96 mg/l, RCR 0.0852 Soil: Exposure 0.000451 mg/kg, PNEC 0.63 mg/kg, RCR 0.000716 Marine water: Exposure 0.00808 mg/l, PNEC 0.79 mg/l, RCR 0.0102

3. Exposure estimation (Health 1)

Assessment method	ConsExpo v4.1
Exposure	Consumer - dermal: Exposure 10.7 mg/kg/day, DNEL 206 mg/kg/day, RCR 0.0519 Consumer - inhalation: Exposure 1.73 mg/m³, DNEL 144 mg/m³, RCR 0.0120

Worst case assumption

Exposure scenario
Industrial and Professional use of Ethanol as a laboratory agent

Identification

Product name	Ethanol
REACH registration number	01-2119457610-43-XXXX
CAS number	64-17-5
EC number	200-578-6
EU index number	603-002-00-5
Supplier	Univar Solutions UK Ltd Aquarius House 6 Mid Point Business Park Bradford BD3 7AY +44 1274 267300 +44 1274 267306 SDS.EMEA@univarsolutions.com

1. Title of exposure scenario

Main title	Industrial and Professional use of Ethanol as a laboratory agent
Process scope	Use of small quantities within laboratory settings, including material transfers and equipment cleaning.
Main sector	SU3 Industrial uses SU22 Professional uses

Environment

Environmental release category	ERC2 Formulation into mixture ERC4 Use of non-reactive processing aid at industrial site (no inclusion into or onto article) ERC8a Widespread use of non-reactive processing aid (no inclusion into or onto article, indoor)

Worker

Process category	PROC15 Use as laboratory reagent.

2. Conditions of use affecting exposure (Industrial - Environment 1)

Product characteristics

Physical state	Liquid
Concentration details	Covers concentrations up to 100 %.

Amounts used

Regional use tonnage: 500 tonnes/year
Annual amount used in the EU: 5000 tonnes

Industrial and Professional use of Ethanol as a laboratory agent

Frequency and duration of use

Continuous.
Emission days: 300 days/year

Environmental factors not influenced by risk management measures

Dilution	Receiving water dilution (fresh or marine): 18000 m³/day

Risk management measures

Good practice	Carefully handle the substance to minimise releases.
Technical measures	When not in use, keep containers tightly closed. Avoid discharge into drains and the aquatic environment.
STP type	Municipal STP.
STP details	Assumed domestic sewage treatment plant flow: 2000 m³/day Removal efficiency (total): 90%

Conditions and measures related to external treatment of waste for disposal

Sludge treatment	Sludge is disposed of or recovered.
Disposal method	Contain and dispose of waste according to local regulations.

2. Conditions of use affecting exposure (Workers - Health 1)

Product characteristics

Physical state	Liquid
Vapour pressure	5.73 kPa @ 20°C
Concentration details	Covers concentrations up to 100 %.

Frequency and duration of use

Covers daily exposure up to 4hours

Human factors not influenced by risk management

Potentially exposed body parts	Palm of one hand. Covers skin contact area up to 240 cm².

Other given operational conditions affecting workers exposure

Setting	Indoor.
Temperature	Assumes activities are at ambient temperature (unless stated differently).

Technical conditions and measures at process level (source) to prevent release

Technical protective measures	No specific risk management measure identified beyond those operational conditions stated.

Organisational measures to prevent/limit releases, dispersion and exposure

Organisational measures	Assumes a good basic standard of occupational hygiene is implemented.

Risk management measures

If risk of splashing, wear safety goggles or face shield.

3. Exposure estimation (Environment 1)

Assessment method	ECETOC TRA v2.0 Environment

Industrial and Professional use of Ethanol as a laboratory agent

Environmental exposure	STP: Exposure 0.170 mg/l, PNEC 580 mg/l, RCR 0.000293 Fresh water: Exposure 0.027 mg/l, PNEC 0.96 mg/l, RCR 0.0281 Soil: Exposure 0.0002 mg/kg, PNEC 0.63 mg/kg, RCR 0.000317 Marine water: Exposure 0.0027 mg/l, PNEC 0.79 mg/l, RCR 0.00342

3. Exposure estimation (Health 1)

Assessment method	ECETOC TRA v2.0 Worker
Exposure	Worker - inhalation: Exposure 19.21 mg/m³, DNEL 950 mg/m³, RCR 0.0202 Worker - dermal: Exposure 0.34 mg/kg/day, DNEL 343 mg/kg/day, RCR 0.000991 Worker - all relevant routes: Exposure 3.09 mg/kg/day, DNEL 343 mg/kg/day, RCR 0.00901 Worst case assumption

Exposure scenario
Industrial and Professional use of Ethanol as heat transfer fluid, or other functional fluid

Identification

Product name	Ethanol
REACH registration number	01-2119457610-43-XXXX
CAS number	64-17-5
EC number	200-578-6
EU index number	603-002-00-5
Supplier	Univar Solutions UK Ltd Aquarius House 6 Mid Point Business Park Bradford BD3 7AY +44 1274 267300 +44 1274 267306 SDS.EMEA@univarsolutions.com

1. Title of exposure scenario

Main title	Industrial and Professional use of Ethanol as heat transfer fluid, or other functional fluid
Process scope	Use of sealed items containing functional fluids e.g. transfer oils, hydraulic fluids, refrigerants.
Main sector	SU3 Industrial uses SU22 Professional uses

Environment

Environmental release category	ERC7 Use of functional fluid at industrial site ERC9a Widespread use of functional fluid (indoor) ERC9b Widespread use of functional fluid (outdoor)

Worker

Process category	PROC20 Use of functional fluids in small devices

2. Conditions of use affecting exposure (Industrial - Environment 1)

Product characteristics

Physical state	Liquid
Concentration details	Covers concentrations up to 100 %.

Amounts used

Regional use tonnage: 500 tonnes/year
Annual amount used in the EU: 5000 tonnes

Frequency and duration of use

Not applicable.

Industrial and Professional use of Ethanol as heat transfer fluid, or other functional fluid

Environmental factors not influenced by risk management measures

Dilution	Receiving water dilution (fresh or marine): 18000 m³/day

Risk management measures

Good practice	Carefully handle the substance to minimise releases.
Technical measures	When not in use, keep containers tightly closed. Avoid discharge into drains and the aquatic environment. Handle substance within a closed system.
STP type	Municipal STP.
STP details	Assumed domestic sewage treatment plant flow: 2000 m³/day Removal efficiency (total): 90%

Conditions and measures related to external treatment of waste for disposal

Sludge treatment	Sludge is disposed of or recovered.
Disposal method	Contain and dispose of waste according to local regulations.

2. Conditions of use affecting exposure (Workers - Health 1)

Product characteristics

Physical state	Liquid
Vapour pressure	5.73 kPa @ 20°C
Concentration details	Covers concentrations up to 100 %.

Frequency and duration of use

Covers daily exposure up to 4hours

Human factors not influenced by risk management

Potentially exposed body parts	Palm of both hands. Covers skin contact area up to 480 cm².

Other given operational conditions affecting workers exposure

Setting	Indoor/outdoor use.
Temperature	Assumes activities are at ambient temperature (unless stated differently).

Technical conditions and measures at process level (source) to prevent release

Technical protective measures	Handle substance within a closed system. Store substance within a closed system.

Organisational measures to prevent/limit releases, dispersion and exposure

Organisational measures	Assumes a good basic standard of occupational hygiene is implemented.

Risk management measures

If risk of splashing, wear safety goggles or face shield.

3. Exposure estimation (Environment 1)

Assessment method	ECETOC TRA v2.0 Environment
Environmental exposure	STP: Exposure 0 mg/l, PNEC 580 mg/l, RCR 0 Fresh water: Exposure 0.0107 mg/l, PNEC 0.96 mg/l, RCR 0.0111 Soil: Exposure 0.0002 mg/kg, PNEC 0.63 mg/kg, RCR 0.000317 Marine water: Exposure 0.0010 mg/l, PNEC 0.79 mg/l, RCR 0.00127

3. Exposure estimation (Health 1)

Industrial and Professional use of Ethanol as heat transfer fluid, or other functional fluid

Assessment method	ECETOC TRA v2.0 Worker
Exposure	Worker - inhalation: Exposure 38.42 mg/m³, DNEL 950 mg/m³, RCR 0.0404 Worker - dermal: Exposure 1.71 mg/kg/day, DNEL 343 mg/kg/day, RCR 0.00499 Worker - all relevant routes: Exposure 7.20 mg/kg/day, DNEL 343 mg/kg/day, RCR 0.0210 Worst case assumption