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

## **Ethyl Proxitol Acetate**

Version Revision Date: SDS Number: Date of last issue: 24.03.2023

2.2 24.11.2023 800001000220 Print Date 01.12.2023

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

#### 1.1 Product identifier

Trade name : Ethyl Proxitol Acetate

Product code : U5149

Registration number EU : 01-2119475116-39

CAS-No. : 54839-24-6

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

Use of the Sub- : Speciality solvent.

stance/Mixture Please refer to section 16 and/or the annexes for the regis-

tered uses under REACH.

Uses advised against : This product must not be used in applications other than the

above without first seeking the advice of the supplier.

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

Manufacturer/Supplier : Shell Chemicals Europe B.V.

PO Box 2334

3000 CH Rotterdam

Netherlands

Telephone

Telefax

Contact for Safety Data

Sheet

: sccmsds@shell.com

#### 1.4 Emergency telephone number

+44 (0) 1235 239 670 (This telephone number is available 24 hours per day, 7 days per

week)

Poison Information Centre: Citizen:16662 / International: +372 626 93 90

Monday 9am Saturday 9am (closed Sunday and public holidays)

Other information : PROXITOL is a trademark owned by Shell Trademark Man-

agement B.V. and Shell Brands Inc. and used by affiliates of

Shell plc.

## **SECTION 2: Hazards identification**

#### 2.1 Classification of the substance or mixture

#### Classification (REGULATION (EC) No 1272/2008)

Flammable liquids, Category 3 H226: Flammable liquid and vapour.

Specific target organ toxicity - single exposure, Category 3, Narcotic effects

H336: May cause drowsiness or dizziness.

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

## **Ethyl Proxitol Acetate**

Version Revision Date: SDS Number: Date of last issue: 24.03.2023

2.2 24.11.2023 800001000220 Print Date 01.12.2023

#### 2.2 Label elements

#### Labelling (REGULATION (EC) No 1272/2008)

Hazard pictograms





Signal word : Warning

Hazard statements : PHYSICAL HAZARDS:

H226 Flammable liquid and vapour.

**HEALTH HAZARDS:** 

H336 May cause drowsiness or dizziness.

**ENVIRONMENTAL HAZARDS:** 

Not classified as environmental hazard according to

CLP criteria.

Precautionary statements : Prevention:

P210 Keep away from heat, hot surfaces, sparks, open

flames and other ignition sources. No smoking. P243 Take action to prevent static discharges.

P280 Wear protective gloves/ protective clothing/ eye protec-

tion/ face protection.

Response:

P304 + P340 IF INHALED: Remove person to fresh air and

keep comfortable for breathing.

P312 Call a POISON CENTER/ doctor if you feel unwell.

Storage:

P402 + P404 Store in a dry place. Store in a closed contain-

er.

P235 Keep cool.

Disposal:

P501 Dispose of contents/ container to an approved waste

disposal plant.

#### 2.3 Other hazards

Ecological information: 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.

Toxicological information: 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.

Even with proper grounding and bonding, this material can still accumulate an electrostatic charge.

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

## **Ethyl Proxitol Acetate**

Version Revision Date: SDS Number: Date of last issue: 24.03.2023

2.2 24.11.2023 800001000220 Print Date 01.12.2023

If sufficient charge is allowed to accumulate, electrostatic discharge and ignition of flammable air-vapour mixtures can occur.

#### **SECTION 3: Composition/information on ingredients**

#### 3.1 Substances

#### Components

Chemical name	CAS-No.	Concentration (% w/w)
	EC-No.	, ,
2-Ethoxy-1-methylethyl	54839-24-6	<= 100
acetate	259-370-9	

#### **SECTION 4: First aid measures**

#### 4.1 Description of first aid measures

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

conditions.

Protection of first-aiders : When administering first aid, ensure that you are wearing the

appropriate personal protective equipment according to the

incident, injury and surroundings.

If inhaled : Remove to fresh air. If rapid recovery does not occur,

transport to nearest medical facility for additional treatment.

In case of skin contact : Remove contaminated clothing. Flush exposed area with wa-

ter and follow by washing with soap if available.

If persistent irritation occurs, obtain medical attention.

In case of eye contact : Flush eye with copious quantities of water.

Remove contact lenses, if present and easy to do. Continue

rinsing.

If persistent irritation occurs, obtain medical attention.

If swallowed : In general no treatment is necessary unless large quantities

are swallowed, however, get medical advice.

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

Symptoms : Breathing of high vapour concentrations may cause central

nervous system (CNS) depression resulting in dizziness, lightheadedness, headache, nausea and loss of coordination. Continued inhalation may result in unconsciousness and

death.

No specific hazards under normal use conditions.

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

## **Ethyl Proxitol Acetate**

Version Revision Date: SDS Number: Date of last issue: 24.03.2023

2.2 24.11.2023 800001000220 Print Date 01.12.2023

Skin irritation signs and symptoms may include a burning sen-

sation, redness, or swelling.

No specific hazards under normal use conditions.

Eye irritation signs and symptoms may include a burning sen-

sation, redness, swelling, and/or blurred vision.

No specific hazards under normal use conditions.

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

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

Treatment : Call a doctor or poison control center for guidance.

Treat symptomatically.

#### **SECTION 5: Firefighting measures**

#### 5.1 Extinguishing media

Suitable extinguishing media : Alcohol-resistant foam, water spray or fog. Dry chemical pow-

der, carbon dioxide, sand or earth may be used for small fires

only.

Unsuitable extinguishing

media

None

#### 5.2 Special hazards arising from the substance or mixture

Specific hazards during fire-

fighting

The vapour is heavier than air, spreads along the ground and

distant ignition is possible.

Carbon monoxide may be evolved if incomplete combustion

occurs.

#### 5.3 Advice for firefighters

Special protective equipment:

for firefighters

Proper protective equipment including chemical resistant gloves are to be worn; chemical resistant suit is indicated if large contact with spilled product is expected. Self-Contained Breathing Apparatus must be worn when approaching a fire in a confined space. Select fire fighter's clothing approved to

relevant Standards (e.g. Europe: EN469).

Specific extinguishing meth-

ods

Standard procedure for chemical fires.

Further information : Clear fire area of all non-emergency personnel.

Keep adjacent containers cool by spraying with water.

#### **SECTION 6: Accidental release measures**

## 6.1 Personal precautions, protective equipment and emergency procedures

Personal precautions : Observe the relevant local and international regulations

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

## **Ethyl Proxitol Acetate**

Version Revision Date: SDS Number: Date of last issue: 24.03.2023

2.2 24.11.2023 800001000220 Print Date 01.12.2023

Notify authorities if any exposure to the general public or the environment occurs or is likely to occur.

Local authorities should be advised if significant spillages cannot be contained.

The vapour is heavier than air, spreads along the ground and distant ignition is possible.

Vapour may form an explosive mixture with air.

6.1.1 For non emergency personnel:

Avoid contact with skin, eyes and clothing.

Isolate hazard area and deny entry to unnecessary or unpro-

tected personnel.

Stay upwind and keep out of low areas.

6.1.2 For emergency responders:

Avoid contact with skin, eyes and clothing.

Isolate hazard area and deny entry to unnecessary or unpro-

tected personnel.

Stay upwind and keep out of low areas.

#### 6.2 Environmental precautions

**Environmental precautions** 

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

Ventilate contaminated area thoroughly. Monitor area with combustible gas indicator.

## 6.3 Methods and material for containment and cleaning up

Methods for cleaning up

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

#### 6.4 Reference to other sections

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

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

## **Ethyl Proxitol Acetate**

Version Revision Date: SDS Number: Date of last issue: 24.03.2023

2.2 24.11.2023 800001000220 Print Date 01.12.2023

#### **SECTION 7: Handling and storage**

#### 7.1 Precautions for safe handling

Technical measures : Avoid breathing of or direct contact with material. Only use in

well ventilated areas. Wash thoroughly after handling. For guidance on selection of personal protective equipment see

Section 8 of this Safety Data Sheet.

Use the information in this data sheet as input to a risk assessment of local circumstances to help determine appropriate controls for safe handling, storage and disposal of this

material.

Ensure that all local regulations regarding handling and stor-

age facilities are followed.

Advice on safe handling : Avoid contact with skin, eyes and clothing.

Use local exhaust ventilation if there is risk of inhalation of

vapours, mists or aerosols.

Bulk storage tanks should be diked (bunded).

Extinguish any naked flames. Do not smoke. Remove ignition

sources. Avoid sparks.

Electrostatic discharge may cause fire. Ensure electrical continuity by bonding and grounding (earthing) all equipment to

reduce the risk.

The vapours in the head space of the storage vessel may lie in the flammable/explosive range and hence may be flamma-

ble.

Properly dispose of any contaminated rags or cleaning mate-

rials in order to prevent fires.

Do NOT use compressed air for filling, discharging, or han-

dling operations.

Product Transfer : Refer to guidance under Handling section.

#### 7.2 Conditions for safe storage, including any incompatibilities

Requirements for storage areas and containers

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

product.

Packaging material : Suitable material: For containers, or container linings use mild

steel, stainless steel.

Unsuitable material: Natural, butyl, neoprene or nitrile rubbers.

Container Advice : Containers, even those that have been emptied, can contain

explosive vapours. Do not cut, drill, grind, weld or perform

similar operations on or near containers.

7.3 Specific end use(s)

Specific use(s) : Please refer to section 16 and/or the annexes for the regis-

tered uses under REACH.

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

## **Ethyl Proxitol Acetate**

Version Revision Date: SDS Number: Date of last issue: 24.03.2023

2.2 24.11.2023 800001000220 Print Date 01.12.2023

Ensure that all local regulations regarding handling and storage facilities are followed.

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

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

#### **SECTION 8: Exposure controls/personal protection**

#### 8.1 Control parameters

#### **Biological occupational exposure limits**

No biological limit allocated.

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

Substance name	End Use	Exposure routes	Potential health effects	Value
2-Ethoxy-1- methylethyl acetate	Workers	Dermal	Long-term systemic effects	103 mg/kg bw/day
2-Ethoxy-1- methylethyl acetate	Workers	Inhalation	Long-term systemic effects	302 mg/kg bw/day
2-Ethoxy-1- methylethyl acetate	Consumer use	Dermal	Long-term systemic effects	62 mg/kg bw/day
2-Ethoxy-1- methylethyl acetate	Consumer use	Inhalation	Long-term systemic effects	181 mg/m3
2-Ethoxy-1- methylethyl acetate	Consumer use	Oral	Long-term systemic effects	13,1 mg/kg bw/day

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

Substance name	Environmental Compartment	Value
2-Ethoxy-1-methylethyl acetate	Fresh water	13 mg/l
2-Ethoxy-1-methylethyl acetate	Marine water	0,13 mg/l
2-Ethoxy-1-methylethyl acetate	Fresh water sediment	6,4 mg/kg
2-Ethoxy-1-methylethyl acetate	Marine sediment	0,64 mg/kg
2-Ethoxy-1-methylethyl acetate	Soil	1,34 mg/kg
2-Ethoxy-1-methylethyl acetate	Sewage treatment plant	62,5 mg/l
2-Ethoxy-1-methylethyl acetate	Oral	117 mg/kg

#### 8.2 Exposure controls

#### **Engineering measures**

Read in conjunction with the Exposure Scenario for your specific use contained in the Annex. The level of protection and types of controls necessary will vary depending upon potential exposure conditions. Select controls based on a risk assessment of local circumstances. Appropriate measures include:

Use sealed systems as far as possible.

Adequate explosion-proof ventilation to control airborne concentrations below the exposure guidelines/limits.

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

## **Ethyl Proxitol Acetate**

Version Revision Date: SDS Number: Date of last issue: 24.03.2023

2.2 24.11.2023 800001000220 Print Date 01.12.2023

Local exhaust ventilation is recommended.

Firewater monitors and deluge systems are recommended.

Eye washes and showers for emergency use.

Where material is heated, sprayed or mist formed, there is greater potential for airborne concentrations to be generated.

#### General Information:

Always observe good personal hygiene measures, such as washing hands after handling the material and before eating, drinking, and/or smoking. Routinely wash work clothing and protective equipment to remove contaminants. Discard contaminated clothing and footwear that cannot be cleaned. Practice good housekeeping.

Define procedures for safe handling and maintenance of controls.

Educate and train workers in the hazards and control measures relevant to normal activities associated with this product.

Ensure appropriate selection, testing and maintenance of equipment used to control exposure, e.g. personal protective equipment, local exhaust ventilation.

Drain down system prior to equipment break-in or maintenance.

Retain drain downs in sealed storage pending disposal or subsequent recycle.

#### Personal protective equipment

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

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

Eye protection : If material is handled such that it could be splashed into eyes,

protective eyewear is recommended. Approved to EU Standard EN166.

Hand protection

Remarks : Where hand contact with the product may occur the use of

gloves approved to relevant standards (e.g. Europe: EN374, US: F739) made from the following materials may provide suitable chemical protection. Longer term protection: butyl-

rubber Nitrile rubber gloves.

Incidental contact/Splash protection: Nitrile rubber gloves. For continuous contact we recommend gloves with breakthrough time of more than 240 minutes with preference for > 480 minutes where suitable gloves can be identified. For short-term/splash protection we recommend the same but recognize that suitable gloves offering this level of protection may not be available and in this case a lower breakthrough time maybe acceptable so long as appropriate maintenance and replacement regimes are followed. Glove thickness is not a good predictor of glove resistance to a chemical as it is dependent on the exact composition of the glove material. Glove thickness should be typically greater than 0.35 mm depending on the glove make and model. Suitability and durability of a glove is dependent on usage, e.g. frequency and

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

## **Ethyl Proxitol Acetate**

Version Revision Date: SDS Number: Date of last issue: 24.03.2023

2.2 24.11.2023 800001000220 Print Date 01.12.2023

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

Skin and body protection : Skin protection is not required under normal conditions of

use.

For prolonged or repeated exposures use impervious clothing

over parts of the body subject to exposure.

If repeated and/or prolonged skin exposure to the substance is likely, then wear suitable gloves tested to relevant Stand-

ard, and provide employee skin care programmes.

Protective clothing approved to EU Standard EN14605.

Wear antistatic and flame-retardant clothing, if a local risk

assessment deems it so.

Respiratory protection : If engineering controls do not maintain airborne concentra-

tions to a level which is adequate to protect worker health, select respiratory protection equipment suitable for the specific conditions of use and meeting relevant legislation. Check with respiratory protective equipment suppliers. Where air-filtering respirators are unsuitable (e.g. airborne concentrations are high, risk of oxygen deficiency, confined space) use appropriate positive pressure breathing appa-

ratus.

Where air-filtering respirators are suitable, select an appro-

priate combination of mask and filter.

If air-filtering respirators are suitable for conditions of use: Select a filter suitable for organic gases and vapours [Type A

boiling point > 65°C (149°F)] meeting EN14387.

#### **SECTION 9: Physical and chemical properties**

#### 9.1 Information on basic physical and chemical properties

Physical state : Liquid.

Colour : colourless

Odour : characteristic

Odour Threshold : Data not available

Melting / freezing point : -89 °C

Boiling point/boiling range : 158 - 160 °C

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

## **Ethyl Proxitol Acetate**

Version Revision Date: SDS Number: Date of last issue: 24.03.2023

2.2 24.11.2023 800001000220 Print Date 01.12.2023

Flammability

Flammability (solid, gas) : Data not available

Lower explosion limit and upper explosion limit / flammability limit

Upper explosion limit /

upper flammability limit

: 9,8 %(V)

Lower explosion limit / Lower flammability limit 1 %(V)

Flash point : 53 °C

Auto-ignition temperature : 325 °C

Decomposition temperature

Decomposition tempera-

ture

Data not available

pH : Not applicable

Viscosity

Viscosity, dynamic : Data not available

Viscosity, kinematic : 1,33 mm2/s (40 °C)

Method: ASTM D445

Solubility(ies)

Water solubility : 69,6 g/l (20 °C)

Partition coefficient: n-

octanol/water

log Pow: 0,76

Vapour pressure : 2,3 hPa (20 °C)

Relative density : Data not available

Density : 0,941 g/cm3 (20 °C)

Method: ASTM D4052

Relative vapour density : Data not available

Particle characteristics

Particle size : Data not available

9.2 Other information

Explosives : Not applicable

Oxidizing properties : Data not available

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

## **Ethyl Proxitol Acetate**

Version Revision Date: SDS Number: Date of last issue: 24.03.2023

2.2 24.11.2023 800001000220 Print Date 01.12.2023

Evaporation rate : Data not available

Conductivity: > 10,000 pS/m

A number of factors, for example liquid temperature, presence of contaminants, and anti-static additives can greatly influence the conductivity of a liquid, This material is not expected to be

a static accumulator.

Surface tension : 39,1 mN/m, 20 °C

Molecular weight : 146,2 g/mol

#### **SECTION 10: Stability and reactivity**

#### 10.1 Reactivity

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

#### 10.2 Chemical stability

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

#### 10.3 Possibility of hazardous reactions

Hazardous reactions : Reacts with strong oxidising agents.

#### 10.4 Conditions to avoid

Conditions to avoid : Avoid heat, sparks, open flames and other ignition sources.

Prevent vapour accumulation.

In certain circumstances product can ignite due to static elec-

tricity.

#### 10.5 Incompatible materials

Materials to avoid : Strong oxidising agents.

## 10.6 Hazardous decomposition products

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

#### **SECTION 11: Toxicological information**

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

Information on likely routes of : Exposure may occur via inhalation, ingestion, skin absorption,

exposure skin or eye contact, and accidental ingestion.

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

## **Ethyl Proxitol Acetate**

Version Revision Date: SDS Number: Date of last issue: 24.03.2023

2.2 24.11.2023 800001000220 Print Date 01.12.2023

#### **Acute toxicity**

#### **Components:**

#### 2-Ethoxy-1-methylethyl acetate:

Acute oral toxicity : LD 50 (Rat): > 5000 mg/kg

Remarks: Low toxicity

Acute inhalation toxicity : Remarks: Low toxicity by inhalation.

LC50 greater than near-saturated vapour concentration.

Acute dermal toxicity : LD 50 (Rabbit): > 5000 mg/kg

Remarks: Low toxicity

#### Skin corrosion/irritation

#### **Components:**

#### 2-Ethoxy-1-methylethyl acetate:

Remarks : Not irritating to skin.

#### Serious eye damage/eye irritation

#### **Components:**

#### 2-Ethoxy-1-methylethyl acetate:

Remarks : Not irritating to eye.

#### Respiratory or skin sensitisation

#### **Components:**

#### 2-Ethoxy-1-methylethyl acetate:

Remarks : Not a sensitiser.

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

## Germ cell mutagenicity

#### **Components:**

#### 2-Ethoxy-1-methylethyl acetate:

Genotoxicity in vivo : Remarks: Not mutagenic.

Germ cell mutagenicity- As- :

This product does not meet the criteria for classification in

sessment categories 1A/1B.

#### Carcinogenicity

#### **Components:**

#### 2-Ethoxy-1-methylethyl acetate:

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

## **Ethyl Proxitol Acetate**

Version Revision Date: SDS Number: Date of last issue: 24.03.2023

2.2 24.11.2023 800001000220 Print Date 01.12.2023

Remarks : Not a carcinogen.

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

Carcinogenicity - Assess-

ment

This product does not meet the criteria for classification in

categories 1A/1B.

Material	GHS/CLP Carcinogenicity Classification
2-Ethoxy-1-methylethyl acetate	No carcinogenicity classification.

#### Reproductive toxicity

#### **Components:**

#### 2-Ethoxy-1-methylethyl acetate:

Effects on fertility

Remarks: Not a developmental toxicant., Based on available data, the classification criteria are not met., Does not impair

fertility.

Reproductive toxicity - As-

sessment

This product does not meet the criteria for classification in

categories 1A/1B.

#### STOT - single exposure

#### **Components:**

#### 2-Ethoxy-1-methylethyl acetate:

Remarks : May cause drowsiness and dizziness.

#### STOT - repeated exposure

#### **Components:**

## 2-Ethoxy-1-methylethyl acetate:

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

#### **Aspiration toxicity**

#### **Components:**

#### 2-Ethoxy-1-methylethyl acetate:

Not an aspiration hazard., Based on available data, the classification criteria are not met.

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

## **Ethyl Proxitol Acetate**

SDS Number: Date of last issue: 24.03.2023 Version Revision Date:

24.11.2023 800001000220 Print Date 01.12.2023 2.2

#### 11.2 Information on other hazards

#### **Endocrine disrupting properties**

**Product:** 

Assessment The substance/mixture does not contain components consid-

> ered 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.

**Further information** 

**Product:** 

Remarks Unless indicated otherwise, the data presented is representa-

tive of the product as a whole, rather than for individual com-

ponent(s).

**Components:** 

2-Ethoxy-1-methylethyl acetate:

Remarks Classifications by other authorities under varying regulatory

frameworks may exist.

#### **SECTION 12: Ecological information**

#### 12.1 Toxicity

#### **Components:**

2-Ethoxy-1-methylethyl acetate:

Toxicity to fish : Remarks: Practically non toxic:

LC/EC/IC50 > 100 mg/l

aquatic invertebrates

Toxicity to daphnia and other : Remarks: Practically non toxic:

LC/EC/IC50 > 100 mg/l

Remarks: Practically non toxic: Toxicity to algae/aquatic plants :

LC/EC/IC50 > 100 mg/l

Toxicity to microorganisms

Remarks: LC/EC/IC50 > 100 mg/l

Practically non toxic:

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

Toxicity to fish (Chronic tox-

icity)

Remarks: NOEC/NOEL > 10 - <=100 mg/l

aquatic invertebrates (Chron-

Toxicity to daphnia and other : Remarks: NOEC/NOEL > 100 mg/l

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

## **Ethyl Proxitol Acetate**

Version Revision Date: SDS Number: Date of last issue: 24.03.2023

2.2 24.11.2023 800001000220 Print Date 01.12.2023

ic toxicity)

#### 12.2 Persistence and degradability

#### **Components:**

#### 2-Ethoxy-1-methylethyl acetate:

Biodegradability : Remarks: Readily biodegradable.

#### 12.3 Bioaccumulative potential

#### **Components:**

#### 2-Ethoxy-1-methylethyl acetate:

Bioaccumulation : Remarks: Does not bioaccumulate significantly.

#### 12.4 Mobility in soil

#### **Components:**

#### 2-Ethoxy-1-methylethyl acetate:

Mobility : Remarks: If the product enters soil, one or more constituents

will or may be mobile and may contaminate groundwater.,

Dissolves in water.

#### 12.5 Results of PBT and vPvB assessment

#### **Components:**

#### 2-Ethoxy-1-methylethyl acetate:

Assessment : The substance does not fulfill all screening criteria for persis-

tence, bioaccumulation and toxicity and hence is not consid-

ered to be PBT or vPvB..

#### 12.6 Endocrine disrupting properties

#### **Product:**

Assessment : 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.

#### 12.7 Other adverse effects

#### **Product:**

Additional ecological infor-

mation

Unless indicated otherwise, the data presented is representative of the product as a whole, rather than for individual component(s).

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

## **Ethyl Proxitol Acetate**

Version Revision Date: SDS Number: Date of last issue: 24.03.2023

2.2 24.11.2023 800001000220 Print Date 01.12.2023

#### **Components:**

#### 2-Ethoxy-1-methylethyl acetate:

Additional ecological infor-

: None known.

mation

#### **SECTION 13: Disposal considerations**

#### 13.1 Waste treatment methods

Product : Recover or recycle if possible.

It is the responsibility of the waste generator to determine the toxicity and physical properties of the material generated to determine the proper waste classification and disposal meth-

ods in compliance with applicable regulations.

Do not dispose into the environment, in drains or in water

courses.

Waste product should not be allowed to contaminate soil or ground water, or be disposed of into the environment. Waste, spills or used product is dangerous waste.

Disposal should be in accordance with applicable regional,

national, and local laws and regulations.

Local regulations may be more stringent than regional or na-

tional requirements and must be complied with.

MARPOL - see International Convention for the Prevention of Pollution from Ships (MARPOL 73/78) which provides tech-

nical aspects at controlling pollutions from ships.

Contaminated packaging : Drain container thoroughly.

After draining, vent in a safe place away from sparks and fire.

Residues may cause an explosion hazard. Do not, puncture, cut, or weld uncleaned drums. Send to drum recoverer or metal reclaimer.

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

#### **SECTION 14: Transport information**

#### 14.1 UN number or ID number

ADR : 3272
RID : 3272
IMDG : 3272
IATA : 3272

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

## **Ethyl Proxitol Acetate**

Version Revision Date: SDS Number: Date of last issue: 24.03.2023

2.2 24.11.2023 800001000220 Print Date 01.12.2023

#### 14.2 UN proper shipping name

ADR : ESTERS, N.O.S.

(2-ethoxy-1-methylethyl acetate)

RID : ESTERS, N.O.S.

(2-ethoxy-1-methylethyl acetate)

IMDG : ESTERS, N.O.S.

(2-ethoxy-1-methylethyl acetate)

IATA : ESTERS, N.O.S.

(2-ethoxy-1-methylethyl acetate)

#### 14.3 Transport hazard class(es)

ADR : 3
RID : 3
IMDG : 3
IATA : 3

#### 14.4 Packing group

#### **ADR**

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

#### RID

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

#### **IMDG**

Packing group : III Labels : 3

#### IATA

Packing group : III Labels : 3

## 14.5 Environmental hazards

#### **ADR**

Environmentally hazardous : no

RID

Environmentally hazardous : no

**IMDG** 

Marine pollutant : no

#### 14.6 Special precautions for user

Remarks : Special Precautions: Refer to Section 7, Handling & Storage,

for special precautions which a user needs to be aware of or

needs to comply with in connection with transport.

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

## **Ethyl Proxitol Acetate**

Version Revision Date: SDS Number: Date of last issue: 24.03.2023

2.2 24.11.2023 800001000220 Print Date 01.12.2023

#### 14.7 Maritime transport in bulk according to IMO instruments

Pollution category : Z Ship type : 3

Product name : Propylene glycol methyl ether acetate

**Additional Information**: This product may be transported under nitrogen blanketing.

Nitrogen is an odourless and invisible gas. Exposure to nitrogen may cause asphyxiation or death. Personnel must observe strict safety precautions when involved with a confined

space entry.

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

Code

#### **SECTION 15: Regulatory information**

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

REACH - Candidate List of Substances of Very High

Concern for Authorisation (Article 59).

: This product does not contain substances of very high concern (Regulation (EC) No 1907/2006 (REACH),

Article 57).

REACH - List of substances subject to authorisation

(Annex XIV)

: Product is not subject to Authorisa-

tion under REACH.

## Other regulations:

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

Product is subject to minimum dangerous level and threshold for hazardous chemicals and procedures for defining the hazard category and hazardous enterprise of an enterprise with a major accident hazard based on Seveso III directive (2012/18/EU).

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

AIIC : Listed

IECSC : Listed

ENCS : Listed

KECI : Listed

NZIoC : Listed

PICCS : Listed

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

## **Ethyl Proxitol Acetate**

Version Revision Date: SDS Number: Date of last issue: 24.03.2023

2.2 24.11.2023 800001000220 Print Date 01.12.2023

TCSI : Listed

#### 15.2 Chemical safety assessment

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

#### **SECTION 16: Other information**

#### Full text of other abbreviations

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

#### **Further information**

Training advice : Provide adequate information, instruction and training for op-

erators.

Other information : For Industry guidance and tools on REACH please visit the

CEFIC website at http://cefic.org/Industry-support.

The substance does not fulfill all screening criteria for persistence, bioaccumulation and toxicity and hence is not consid-

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

## **Ethyl Proxitol Acetate**

Version Revision Date: SDS Number: Date of last issue: 24.03.2023

2.2 24.11.2023 800001000220 Print Date 01.12.2023

ered to be PBT or vPvB.

A vertical bar (|) in the left margin indicates an amendment

from the previous version.

Sources of key data used to compile the Safety Data

Sheet

The quoted data are from, but not limited to, one or more sources of information (e.g. toxicological data from Shell Health Services, material suppliers' data, CONCAWE, EU

IUCLID date base, EC 1272 regulation, etc).

Classification of the mixture: Classification procedure:

Flam. Liq. 3 H226 On basis of test data.

STOT SE 3 H336 Expert judgement and weight of evi-

dence determination.

Identified Uses according to the Use Descriptor System

**Uses - Worker** 

Title : Manufacture of substance- Industrial

**Uses - Worker** 

Title : Formulation & (re)packing of substances and mixtures- Indus-

trial

**Uses - Worker** 

Title : Uses in CoatingsSolvent-based process.- Industrial

Uses - Worker

Title : Uses in CoatingsSolvent-based process.- Professional

Identified Uses according to the Use Descriptor System

**Uses - Consumer** 

Title : Uses in Coatings

Solvent-based process.

- Consumer

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

EE / EN

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

## **Ethyl Proxitol Acetate**

Version Revision Date: SDS Number: Date of last issue: 24.03.2023

2.2 24.11.2023 800001000220 Print Date 01.12.2023

**Exposure Scenario - Worker** 

300000010149	-
SECTION 1	EXPOSURE SCENARIO TITLE
Title	
	Manufacture of substance- Industrial
Use Descriptor	Sector of Use: SU3 Process Categories: PROC1, PROC2, PROC3, PROC4, PROC8a, PROC8b, PROC15 Environmental Release Categories: ERC1, ERC4, ESVOC SpERC 1.1.v1
Scope of process	Manufacture of the substance or use as a process chemical or extraction agent. Includes recycling/ recovery, material transfers, storage, maintenance and loading (including marine vessel/barge, road/rail car and bulk container), sampling and associated laboratory activities.

SECTION 2	OPERATIONAL CONDITIONS AND RISK MANAGEMENT MEASURES
Section 2.1	Control of Worker Exposure
<b>Product Characteristics</b>	
Physical form of product	Liquid, vapour pressure < 0.5 kPa at STP
Concentration of the Sub-	Covers percentage substance in the product up to 100%.,
stance in Mixture/Article	Unless stated otherwise.,
Frequency and Duration of	Use
Covers daily exposures up to	8 hours (unless stated differently).
Other Operational Condition	ns affecting Exposure
Assumes use at not more that	an 20°C above ambient temperature (unless stated differently).
Assumes a good basic stand	ard of occupational hygiene is implemented.
Contributing Scenarios	Risk Management Measures
General expo-	No other specific measures identified.
sures.Continuous pro-	
cess(closed sys-	
tems)PROC1	
General expo-	No other specific measures identified.
sures Continuous process-	
with sample collec-	
tion(closed sys-	
tems)PROC2	
Use in contained batch	No other specific measures identified.
processesPROC3	
General exposures (open	No other specific measures identified.
systems)PROC4	
Process sampling(closed	No other specific measures identified.
systems)PROC2	
Equipment cleaning and maintenancePROC8a	No other specific measures identified.

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

## **Ethyl Proxitol Acetate**

Version Revision Date: SDS Number: Date of last issue: 24.03.2023

Bulk transfersDedicated	No other specific measures identified.	
facilityPROC8b	'	
Bulk product storage(closed	No other specific measures identified.	
systems)PROC2		
Laboratory activi-	No other specific measures identified.	
tiesPROC15		
Section 2.2	Control of Environmental Exposure	_
Substance is a unique structu	ıre.	
Readily biodegradable.		
Very soluble in water (>10g/l)		
Slightly toxic to aquatic specie	es.	
Low bioaccumulation potentia	al.	
Amounts Used		
Fraction of EU tonnage used	in region:	1
Regional use tonnage (tonnes		2,0E+03
Fraction of Regional tonnage		1
Annual site tonnage (tonnes/		2,0E+03
Maximum daily site tonnage (		5,0E+04
Frequency and Duration of	Use	
Continuous release.		
Emission Days (days/year):		300
	nfluenced by risk management	
Local freshwater dilution factor		10
Local marine water dilution fa		100
	ns affecting Environmental Exposure	
	rocess (initial release prior to RMM):	0,001
Release fraction to wastewate RMM):	er from process (initial release prior to	0,003
	process (initial release prior to RMM):	0
	neasures at process level (source) to pr	event release
	ss sites thus conservative process re-	
lease estimates used.		
	s and measures to reduce or limit disch	arges, air emis-
sions and releases to soil		
Prevent discharge of undisso wastewater.	lved substance to or recover from onsite	
No air emission controls requ	ired; required removal efficiency is 0%.	
	t applicable as there is no direct release	
to soil.		
Onsite waste water treatment	required.	
Do not discharge to sewers o		
	a typical removal efficiency of (%)	0
	r to receiving water discharge) to provide	91,5
the required removal efficience		
	wage treatment plant, provide the re-	91,5
quired onsite wastewater rem		
	prevent/limit release from site	
Do not apply industrial sludge	e to natural soils.	
Sludge should be incinerated	, contained or reclaimed.	

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

## **Ethyl Proxitol Acetate**

Version Revision Date: SDS Number: Date of last issue: 24.03.2023

2.2 24.11.2023 800001000220 Print Date 01.12.2023

Site should have a spill plan to ensure that adequate safeguards are in place to minimize the impact of episodic releases.

Bund storage facilities to prevent soil and water pollution in the event of spillage.

A leak prevention plan is needed to prevent low level continual releases.

Prevent environmental discharge consistent with regulatory requirements.

Conditions and Measures related to municipal sewage treatment plant		
Estimated substance removal from wastewater via domestic sewage	91,5	
treatment (%)		
Total efficiency of removal from wastewater after onsite and offsite	91,5	
(domestic treatment plant) RMMs (%)		
Maximum allowable site tonnage (MSafe) based on release following	9,8E+04	
total wastewater treatment removal (kg/d)		
Assumed domestic sewage treatment plant flow (m3/d)	4,0E+03	

Conditions and Measures related to external treatment of waste for disposal

Estimated amount entering waste treatment no greater than: 2%.

Type of treatment suitable for waste: incineration.

Removal efficiency (%): 99.98.

Dispose of waste product or used containers according to local regulations.

Treat as hazardous waste.

#### Conditions and measures related to external recovery of waste

Estimated amount entering waste treatment no greater than: 2%.

Type of treatment suitable for waste: redistillation.

External treatment and disposal of waste should comply with applicable local and/or regional regulations.

SECTION 3	EXPOSURE ESTIMATION
Section 3.1 - Health	

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

Section 3.2 -Environment	
Used ECETOC TRA model.	

SECTION 4	GUIDANCE TO CHECK COMPLIANCE WITH THE EXPOSURE SCENARIO
Section 4.1 - Health	
Predicted exposures are not expected to exceed the DN(M)EL when the Risk Management	

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

## **Ethyl Proxitol Acetate**

Version Revision Date: SDS Number: Date of last issue: 24.03.2023

2.2 24.11.2023 800001000220 Print Date 01.12.2023

Measures/Operational Conditions outlined in Section 2 are implemented.

Where other Risk Management Measures/Operational Conditions are adopted, then users should ensure that risks are managed to at least equivalent levels.

#### Section 4.2 - Environment

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

Required removal efficiency for wastewater can be achieved using onsite/offsite technologies, either alone or in combination.

Required removal efficiency for air can be achieved using on-site technologies, either alone or in combination.

Further details on scaling and control technologies are provided in SpERC factsheet (http://cefic.org/en/reach-for-industries-libraries.html).

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

## **Ethyl Proxitol Acetate**

Version Revision Date: SDS Number: Date of last issue: 24.03.2023

2.2 24.11.2023 800001000220 Print Date 01.12.2023

**Exposure Scenario - Worker** 

30000010150	
SECTION 1	EXPOSURE SCENARIO TITLE
Title	Formulation & (re)packing of substances and mixtures- Industrial
Use Descriptor	Sector of Use: SU3 Process Categories: PROC1, PROC2, PROC3, PROC4, PROC5, PROC8a, PROC8b, PROC9, PROC15 Environmental Release Categories: ERC2, ESVOC SpERC 2.2.v1
Scope of process	Formulation, packing and re-packing of the substance and its mixtures in batch or continuous operations, including storage, materials transfers, mixing, tabletting, compression, pelletisation, extrusion, large and small scale packing, sampling, maintenance and associated laboratory activities.

SECTION 2	OPERATIONAL CONDITIONS AND RISK MANAGEMENT MEASURES	
Section 2.1	Control of Worker Exposure	
Product Characteristics		
Physical form of product	Liquid, vapour pressure < 0.5 kPa at STP	
Concentration of the Substance in Mixture/Article	Covers percentage substance in the product up to 100%., Unless stated otherwise.,	
Frequency and Duration of Use		
Covers daily exposures up to 8 hours (unless stated differently).		
Other Operational Conditions affecting Exposure		

Assumes use at not more than 20°C above ambient temperature (unless stated differently). Assumes a good basic standard of occupational hygiene is implemented.

Contributing Scenarios	Risk Management Measures
General measures	Formulate in enclosed or ventilated mixing vessels.
General exposures.Continuous process- no sampling(closed systems)PROC1	No other specific measures identified.
General expo- sures.Continuous process- with sample collec- tion(closed sys- tems)PROC2	No other specific measures identified.
General exposures.Use in contained batch processeswith sample collectionPROC3	No other specific measures identified.
General exposures (open	No other specific measures identified.

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

## **Ethyl Proxitol Acetate**

Version Revision Date: SDS Number: Date of last issue: 24.03.2023

systems)PROC4 Batch processes at elevated temperatures(closed systems)PROC3 Process sampling(closed systems)PROC2 Bulk transfersDedicated	No other specific measures identified.  No other specific measures identified.  No other specific measures identified.	
ed temperatures(closed systems)PROC3 Process sampling(closed systems)PROC2	No other specific measures identified.	
systems)PROC3 Process sampling(closed systems)PROC2	·	
Process sampling(closed systems)PROC2	·	
systems)PROC2	·	
Bulk transfersDedicated	No other specific measures identified.	
facilityPROC8b		
Mixing operations (open	No other specific measures identified.	
systems)PROC5	•	
Transfer from/pouring from containersManualPROC9	No other specific measures identified.	
Equipment cleaning and maintenancePROC8a	No other specific measures identified.	
Drum/batch transfersDedicated facilityPROC8b	No other specific measures identified.	
Drum and small package	No other specific measures identified.	
fillingDedicated facili- tyPROC9		
Bulk product storage(closed systems)Product sampling.PROC2	No other specific measures identified.	
Laboratory activi- tiesPROC15	No other specific measures identified.	
Section 2.2	Control of Environmental Exposure	
Substance is a unique structu		
Readily biodegradable.		
Very soluble in water (>10g/l).		
Slightly toxic to aquatic specie		
Low bioaccumulation potentia		
Amounts Used	1.	
Fraction of EU tonnage used i	n region:	1
Regional use tonnage (tonnes		2,0E+03
Fraction of Regional tonnage		2,0L+03
Annual site tonnage (tonnes/y		2,0E+03
Maximum daily site tonnage (I		1,0E+04
Frequency and Duration of		1,ULTU <del>1</del>
Continuous release.		
Emission Days (days/year):		300
	nfluenced by risk management	1 000
Local freshwater dilution facto		10
Local marine water dilution fac		100
	ns affecting Environmental Exposure	100
	ocess (initial release prior to RMM):	0,01
	er from process (initial release prior to	0,0015
	rocess (initial release prior to RMM):	1,0E-04
	easures at process level (source) to process re-	EVEIIL I EIEASE
lease estimates used.	s sites thus conservative process re-	
<b>Technical onsite conditions</b>	and measures to reduce or limit disch	arges, air emis-

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

## **Ethyl Proxitol Acetate**

Version Revision Date: SDS Number: Date of last issue: 24.03.2023

sions and releases to soil		
Prevent discharge of undissolved substance to or recover from onsite		
wastewater.		
If discharging to domestic sewage treatment plant, no onsite		
wastewater treatment required.		
Treatment of air emissions is not required for the purposes of REACH		
compliance but may be needed to comply with other environmental		
legislation.		
Treat air emission to provide a typical removal efficiency of (%)		
Treat onsite wastewater (prior to receiving water discharge) to provide the required removal efficiency of >= (%)	91,5	
If discharging to domestic sewage treatment plant, provide the required onsite wastewater removal efficiency of (%)	0	
Organisational measures to prevent/limit release from site	ļ.	
Do not apply industrial sludge to natural soils.		
Sludge should be incinerated, contained or reclaimed.		
,		
Bund storage facilities to prevent soil and water pollution in the event of	spillage.	
Prevent environmental discharge consistent with regulatory requiremen	ts.	
Conditions and Measures related to municipal sewage treatment p	lant	
Estimated substance removal from wastewater via domestic sewage	91,5	
treatment (%)		
Total efficiency of removal from wastewater after onsite and offsite	91,5	
(domestic treatment plant) RMMs (%)		
Maximum allowable site tonnage (MSafe) based on release following	1,98E+05	
total wastewater treatment removal (kg/d)		
Assumed domestic sewage treatment plant flow (m3/d)	2,0E+03	
Conditions and Measures related to external treatment of waste for	r disposal	
Estimated amount entering waste treatment no greater than: 5%.		
Type of treatment suitable for waste: incineration.		
Type of troutinent ballable for master information.		
Removal efficiency (%): 99.98.		
Dispose of waste product or used containers according to local regulations.		
	Treat as hazardous waste.	
Treat as hazardous waste.		
Treat as hazardous waste.  Conditions and measures related to external recovery of waste		
	local and/or regional	

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

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

## **Ethyl Proxitol Acetate**

Version Revision Date: SDS Number: Date of last issue: 24.03.2023

2.2 24.11.2023 800001000220 Print Date 01.12.2023

Section 3.2 -Environment
Used ECETOC TRA model.

SECTION 4	GUIDANCE TO CHECK COMPLIANCE WITH THE EXPOSURE SCENARIO
Castian 4.4 Haalth	<u> </u>

#### Section 4.1 - Health

Predicted exposures are not expected to exceed the DN(M)EL when the Risk Management Measures/Operational Conditions outlined in Section 2 are implemented.

Where other Risk Management Measures/Operational Conditions are adopted, then users should ensure that risks are managed to at least equivalent levels.

#### Section 4.2 - Environment

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

Required removal efficiency for wastewater can be achieved using onsite/offsite technologies, either alone or in combination.

Required removal efficiency for air can be achieved using on-site technologies, either alone or in combination.

Further details on scaling and control technologies are provided in SpERC factsheet (http://cefic.org/en/reach-for-industries-libraries.html).

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

## **Ethyl Proxitol Acetate**

Version Revision Date: SDS Number: Date of last issue: 24.03.2023

2.2 24.11.2023 800001000220 Print Date 01.12.2023

**Exposure Scenario - Worker** 

	Exposure Scenario - Worker		
30000010151			
SECTION 1	EXPOSURE SCENARIO TITLE		
Title	Uses in CoatingsSolvent-based process Industrial		
Use Descriptor	Sector of Use: SU3 Process Categories: PROC1, PROC2, PROC3, PROC4, PROC5, PROC7, PROC8a, PROC8b, PROC9, PROC10, PROC13, PROC14, PROC15 Environmental Release Categories: ERC4, ESVOC SpERC 4.3a.v1		
Scope of process	Covers the use in coatings (paints, inks, adhesives, etc) including exposures during use (including materials receipt, storage, preparation and transfer from bulk and semi-bulk, application by spray, roller, spreader, dip, flow, fluidised bed on production lines and film formation) and equipment cleaning, maintenance and associated laboratory activities.		

SECTION 2	OPERATIONAL CONDITIONS AND RISK MANAGEMENT MEASURES	
Section 2.1	Control of Worker Exposure	
Product Characteristics		
Physical form of product	Liquid, vapour pressure < 0.5 kPa at STP	
Concentration of the Sub-	Covers percentage substance in the product up to 100%.,	
stance in Mixture/Article	Unless stated otherwise.,	
Frequency and Duration of	Use	
Covers daily exposures up to	8 hours (unless stated differently).	
Other Operational Conditio	ns affecting Exposure	
	in 20°C above ambient temperature (unless stated differently).	
Assumes a good basic standard of occupational hygiene is implemented.		
Contributing Scenarios Risk Management Measures		
General exposures (closed systems)PROC1	No other specific measures identified.	
General exposures (closed systems) with sample collection PROC2	No other specific measures identified.	
Film formation - force drying (50 - 100°C). Stoving (>100°C). UV/EB radiation curingPROC2	No other specific measures identified.	
Mixing operations (closed systems)General exposures (closed systems)PROC3	No other specific measures identified.	
Film formation - air dry-ingPROC4	No other specific measures identified.	

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

## **Ethyl Proxitol Acetate**

Version Revision Date: SDS Number: Date of last issue: 24.03.2023

	<u></u>	
Preparation of material for	No other specific measures identified.	
applicationMixing opera-		
tions (open sys-		
tems)PROC5		
Spraying (automat-ic/robotic)PROC7	PROC7	
SprayingManualwith local exhaust ventilation.PROC7	Carry out in a vented booth or extracted enclosure.	
SprayingManualWithout	Wear a respirator conforming to EN140 v	vith Type A filter or
Local Exhaust Ventila-	better.	
tionPROC7	Change filter cartridge on respirator daily	
	Avoid carrying out activities involving exp	osure for more than
	4 hours	
	Wear suitable gloves tested to EN374.	
	Wear suitable coveralls to prevent expos	ure to the skin.
Material transfersNon-	No other specific measures identified.	
dedicated facilityPROC8a	110 Strict opcome measures identified.	
Material transfersDedicated	No other specific measures identified.	
facilityPROC8b	,	
Roller, spreader, flow appli-	Provide a good standard of general venti	lation (not less than
cationPROC10	3 to 5 air changes per hour).	
	Ensure operation is undertaken outdoors.	
Dipping, immersion and	Provide a good standard of general ventilation (not less than	
pouringPROC13	3 to 5 air changes per hour).	
Laboratory activi-	No other specific measures identified.	
tiesPROC15	The earlier openine measures identified.	
Material trans-	No other specific measures identified.	
fersDrum/batch transfer-	'	
sTransfer from/pouring from		
containersDedicated facili-		
tyPROC9	N 10 10 10 10 10 10 10 10 10 10 10 10 10	
Production or preparation	No other specific measures identified.	
or articles by tabletting,		
compression, extrusion or pelletisationPROC14		
Section 2.2	Control of Environmental Exposure	
Substance is a unique structu		
Readily biodegradable.	AI O.	
Very soluble in water (>10g/l)		
Slightly toxic to aquatic speci-		
Low bioaccumulation potentia		
Amounts Used		1
Fraction of EU tonnage used	in region:	1
	Regional use tonnage (tonnes/year):  1.000	
Fraction of Regional tonnage		1
	Annual site tonnage (tonnes/year): 200	
		3,3E+03
Frequency and Duration of		
-		

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

## **Ethyl Proxitol Acetate**

Version Revision Date: SDS Number: Date of last issue: 24.03.2023

Continuous release.	<u> </u>
	200
Emission Days (days/year):	300
Environmental factors not influenced by risk management	40
Local freshwater dilution factor:	10
Local marine water dilution factor:	100
Other Operational Conditions affecting Environmental Exposure	0.000
Release fraction to air from process (initial release prior to RMM):	0,098
Release fraction to wastewater from process (initial release prior to RMM):	0,02
Release fraction to soil from process (initial release prior to RMM):	0
Technical conditions and measures at process level (source) to pro	event release
Common practices vary across sites thus conservative process re-	
lease estimates used.	
Technical onsite conditions and measures to reduce or limit discha-	arges, air emis-
sions and releases to soil	
Prevent discharge of undissolved substance to or recover from onsite	
wastewater.	
If discharging to domestic sewage treatment plant, no onsite	
wastewater treatment required.	
Soil emission controls are not applicable as there is no direct release	
to soil.	
Treat air emission to provide a typical removal efficiency of (%)	80
Treat onsite wastewater (prior to receiving water discharge) to provide	91,5
the required removal efficiency of >= (%)	
If discharging to domestic sewage treatment plant, provide the re-	0
quired onsite wastewater removal efficiency of (%)	
Organisational measures to prevent/limit release from site	
Do not apply industrial sludge to natural soils.	
Sludge should be incinerated, contained or reclaimed.	
Conditions and Measures related to municipal sewage treatment p	lant
Estimated substance removal from wastewater via domestic sewage	91,5
treatment (%)	,
Total efficiency of removal from wastewater after onsite and offsite	91,5
(domestic treatment plant) RMMs (%)	,
Maximum allowable site tonnage (MSafe) based on release following	4,94E+04
total wastewater treatment removal (kg/d)	,
Assumed domestic sewage treatment plant flow (m3/d)	2,0E+03
Conditions and Measures related to external treatment of waste for	
Estimated amount entering waste treatment no greater than: 5%.	•
Type of treatment suitable for waste: incineration.	
Removal efficiency (%): 99.98.	
Dispose of waste product or used containers according to local regulation	ons.
Treat as hazardous waste.	
Conditions and measures related to external recovery of waste	
Conditions and measures related to external recovery of waste	

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

## **Ethyl Proxitol Acetate**

Version Revision Date: SDS Number: Date of last issue: 24.03.2023

2.2 24.11.2023 800001000220 Print Date 01.12.2023

External treatment and disposal of waste should comply with applicable local and/or regional regulations.

## SECTION 3 EXPOSURE ESTIMATION

Section 3.1 - Health

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

#### **Section 3.2 - Environment**

Used ECETOC TRA model.

# SECTION 4 GUIDANCE TO CHECK COMPLIANCE WITH THE EXPOSURE SCENARIO

#### Section 4.1 - Health

Predicted exposures are not expected to exceed the DN(M)EL when the Risk Management Measures/Operational Conditions outlined in Section 2 are implemented.

Where other Risk Management Measures/Operational Conditions are adopted, then users should ensure that risks are managed to at least equivalent levels.

#### **Section 4.2 - Environment**

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

Required removal efficiency for wastewater can be achieved using onsite/offsite technologies, either alone or in combination.

Required removal efficiency for air can be achieved using on-site technologies, either alone or in combination.

Further details on scaling and control technologies are provided in SpERC factsheet (http://cefic.org/en/reach-for-industries-libraries.html).

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

## **Ethyl Proxitol Acetate**

Version Revision Date: SDS Number: Date of last issue: 24.03.2023

2.2 24.11.2023 800001000220 Print Date 01.12.2023

**Exposure Scenario - Worker** 

30000010152		
SECTION 1	EXPOSURE SCENARIO TITLE	
Title	Uses in CoatingsSolvent-based process Professional	
Use Descriptor	Sector of Use: SU22 Process Categories: PROC1, PROC2, PROC3, PROC4, PROC5, PROC8a, PROC8b, PROC10, PROC11, PROC13, PROC15, PROC19 Environmental Release Categories: ERC8a, ERC8d, ESVOC SpERC 8.3b.v1	
Scope of process	Covers the use in coatings (paints, inks, adhesives, etc) including exposures during use (including materials receipt, storage, preparation and transfer from bulk and semi-bulk, application by spray, roller, brush, spreader by hand or similar methods, and film formation), and equipment cleaning, maintenance and associated laboratory activities.	

SECTION 2	OPERATIONAL CONDITIONS AND RISK MANAGEMENT MEASURES	
Section 2.1	Control of Worker Exposure	
Product Characteristics		
Physical form of product	Liquid, vapour pressure < 0.5 kPa at STP	
Concentration of the Sub-	Covers percentage substance in the product up to 100%.,	
stance in Mixture/Article	Unless stated otherwise.,	
Frequency and Duration of Use		
Covers daily exposures up to 8 hours (unless stated differently).		
Other Operational Conditions affecting Exposure		
Assumes use at not more than 20°C above ambient temperature (unless stated differently).		

Assumes use at not more than 20°C above ambient temperature (unless stated differently). Assumes a good basic standard of occupational hygiene is implemented.

Contributing Scenarios	Risk	Management Measures	
General exposures (closed sy tems)PROC1	'S-	No other specific measures identified.	
Filling/ preparation of equipme from drums or containers.with sample collection(closed systems)PROC2		No other specific measures identified.	
General exposures (closed sy tems)Use in contained system with sample collectionPROC2	าร-	No other specific measures identified.	
Preparation of material for app cationPROC3	oli-	No other specific measures identified.	
Film formation - air dry- ingOutdoorPROC4		Ensure operation is undertaken outdoors.	
Film formation - air dryingln-doorPROC4		No other specific measures identified.	

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

## **Ethyl Proxitol Acetate**

Version Revision Date: SDS Number: Date of last issue: 24.03.2023

Preparation of material for applicationIndoorPROC5	No other specific measures identifie	d.
Preparation of material for applicationDrum/batch transfersOutdoorPROC5	No other specific measures identified.	
Material transfersDrum/batch transfersNon-dedicated facilityPROC8a	Provide a good standard of general 3 to 5 air changes per hour). , or:	ventilation (not less than
	Ensure operation is undertaken outo	doors.
Material transfersDedicated facili- tyDrum/batch transfersPROC8b	No other specific measures identifie	d.
Roller, spreader, flow application- IndoorPROC10	Provide a good standard of general 3 to 5 air changes per hour). Wear suitable gloves tested to EN37	
Roller, spreader, flow applicationOutdoorPROC10	Ensure operation is undertaken outdoors. Wear suitable gloves tested to EN374.	
SprayingManualIndoorPROC11	Carry out in a vented booth or extracted enclosure. Wear suitable gloves tested to EN374. Wear suitable coveralls to prevent exposure to the skin.	
SprayingManualOutdoorPROC11	Wear a respirator conforming to EN140 with Type A filter or better. Change filter cartridge on respirator daily. Wear suitable gloves tested to EN374. Wear suitable coveralls to prevent exposure to the skin. Avoid carrying out activities involving exposure for more than 4 hours	
Dipping, immersion and pouringIndoorPROC13	No other specific measures identifie	d.
Dipping, immersion and pouringOutdoorPROC13	No other specific measures identifie	d.
Laboratory activitiesPROC15	No other specific measures identified.	
Hand application - fingerpaints, pastels, adhesivesIndoorPROC19	Provide a good standard of general ventilation (not less than 3 to 5 air changes per hour).  Ensure operation is undertaken outdoors.  Wear suitable gloves tested to EN374.	
Section 2.2 Con	trol of Environmental Exposure	
Substance is a unique structure.	•	
Readily biodegradable.		
Very soluble in water (>10g/l).		
Slightly toxic to aquatic species.		
Low bioaccumulation potential.		
Amounts Used		
Fraction of EU tonnage used in reg	gion:	0,1
Regional use tonnage (tonnes/yea		50

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

## **Ethyl Proxitol Acetate**

Version Revision Date: SDS Number: Date of last issue: 24.03.2023

	1
Fraction of Regional tonnage used locally:	0,0005
Annual site tonnage (tonnes/year):	0,1
Maximum daily site tonnage (kg/day):	0,275
Frequency and Duration of Use	T
Continuous release.	
Emission Days (days/year):	365
Environmental factors not influenced by risk management	
Local freshwater dilution factor:	10
Local marine water dilution factor:	100
Other Operational Conditions affecting Environmental Exposure	
Release fraction to air from process (initial release prior to RMM):	0,98
Release fraction to wastewater from process (initial release prior to RMM):	0,01
Release fraction to soil from process (initial release prior to RMM):	0,01
Technical conditions and measures at process level (source) to pro	,
Common practices vary across sites thus conservative process re-	
lease estimates used.	
Technical onsite conditions and measures to reduce or limit discha-	arges, air emis-
sions and releases to soil	<b>,</b>
Prevent discharge of undissolved substance to or recover from onsite	
wastewater.	
If discharging to domestic sewage treatment plant, no onsite	
wastewater treatment required.	
Onsite wastewater treatment plant is not assumed.	
Treatment of air emissions is not required for the purposes of REACH	
compliance but may be needed to comply with other environmental	
legislation.	
Prevent environmental discharge consistent with regulatory require-	
ments.	
Treat air emission to provide a typical removal efficiency of (%)	
Treat onsite wastewater (prior to receiving water discharge) to provide	87,3
the required removal efficiency of >= (%)	
If discharging to domestic sewage treatment plant, provide the re-	0
quired onsite wastewater removal efficiency of (%)	
Organisational measures to prevent/limit release from site	
Do not apply industrial sludge to natural soils.	
Sludge should be incinerated, contained or reclaimed.	
Conditions and Measures related to municipal sewage treatment p	lant
Estimated substance removal from wastewater via domestic sewage	87,3
treatment (%)	
Total efficiency of removal from wastewater after onsite and offsite	87,3
(domestic treatment plant) RMMs (%)	
Maximum allowable site tonnage (MSafe) based on release following	137,5
total wastewater treatment removal (kg/d)	
Assumed domestic sewage treatment plant flow (m3/d)	2,0E+03
Conditions and Measures related to external treatment of waste for	
Estimated amount entering waste treatment no greater than: 10%.	
Type of treatment suitable for waste: approved landfill.	

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

## **Ethyl Proxitol Acetate**

Version Revision Date: SDS Number: Date of last issue: 24.03.2023

2.2 24.11.2023 800001000220 Print Date 01.12.2023

Type of treatment suitable for waste: incineration.

Removal efficiency (%): 99.98.

Dispose of waste or used sacks/containers according to local regulations.

Dispose of waste product or used containers according to local regulations.

Treat as hazardous waste.

#### Conditions and measures related to external recovery of waste

Not applicable.

#### SECTION 3 EXPOSURE ESTIMATION

#### Section 3.1 - Health

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

#### Section 3.2 - Environment

Used ECETOC TRA model.

# SECTION 4 GUIDANCE TO CHECK COMPLIANCE WITH THE EXPOSURE SCENARIO

## Section 4.1 - Health

Predicted exposures are not expected to exceed the DN(M)EL when the Risk Management Measures/Operational Conditions outlined in Section 2 are implemented.

Where other Risk Management Measures/Operational Conditions are adopted, then users should ensure that risks are managed to at least equivalent levels.

#### Section 4.2 -Environment

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

Required removal efficiency for wastewater can be achieved using onsite/offsite technologies, either alone or in combination.

Required removal efficiency for air can be achieved using on-site technologies, either alone or in combination.

Further details on scaling and control technologies are provided in SpERC factsheet (http://cefic.org/en/reach-for-industries-libraries.html).

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

## **Ethyl Proxitol Acetate**

Version Revision Date: SDS Number: Date of last issue: 24.03.2023

2.2 24.11.2023 800001000220 Print Date 01.12.2023

**Exposure Scenario - Consumer** 

30000010153	
SECTION 1	EXPOSURE SCENARIO TITLE
Title	Uses in Coatings Solvent-based process Consumer
Use Descriptor	Sector of Use: SU21 Product Categories: PC9a, PC18 Environmental Release Categories: ERC8a, ERC8d, ESVOC SpERC 8.3c.v1
Scope of process	Covers the use in coatings (paints, inks, adhesives, etc) including exposures during use (including product transfer and preparation, application by brush, spray by hand or similar methods) and equipment cleaning.

SECTION 2	OPERATIONAL CONDITIONS AND RISK MANAGEMENT MEASURES
Section 2.1	Control of Consumer Exposure
Product Characteristics	
Physical form of product	Liquid, vapour pressure > 10 Pa at STP
Concentration of the Substance in Mixture/Article	See specific operational conditions below.
Other Operational Condition	ns affecting Exposure
Covers use at ambient temper	
Product Categories	OPERATIONAL CONDITIONS AND RISK MANAGEMENT MEASURES
Coatings and paints, thin- ners, paint removers Sol- vent rich, high solid, water borne paint.	Covers concentration up to (%): 10
	covers use up to 6 day/year
	for each use event, covers amount up to (g): 500
	covers skin contact area up to (cm2): 428
	Covers use in room size of 20m3
	Covers exposure up to 2,2 hours/event
	Avoid using without an operating fan and open windows.
	Avoid using in room with closed doors.
Coatings and paints, thin- ners, paint removers Aero- sol spray can.	Covers concentration up to (%): 10
	covers use up to 2 day/year
	for each use event, covers amount up to (g): 215
	covers skin contact area up to (cm2): 254
	Covers use in a one car garage (34 m3) under typical ventilation.
	Covers exposure up to 1 hours/event
_	Avoid using in rooms smaller than a garage - room volume of

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

## **Ethyl Proxitol Acetate**

Version Revision Date: SDS Number: Date of last issue: 24.03.2023

	at least 34 m3
Ink and toners Inks and	Covers concentration up to (%): 10
toners.	
	covers use up to (times/day of use): 1
	for each use event, covers amount up to (g): 50
	covers skin contact area up to (cm2): 71
	Covers use in room size of 20m3
	Covers use under typical household ventilation.
	Covers exposure up to 8 hours/event

	Covers exposure up to 8 nours/event	
Section 2.2	Control of Environmental Exposure	
Substance is a unique structu	ıre.	
Readily biodegradable.		
Very soluble in water (>10g/l)		
Slightly toxic to aquatic speci-	es.	
Low bioaccumulation potentia	al.	
Amounts Used		
Fraction of EU tonnage used	in region:	0,1
Regional use tonnage (tonne	s/year):	50
Fraction of Regional tonnage		2,0E-03
Annual site tonnage (tonnes/	year):	0,1
Maximum daily site tonnage (	(kg/day):	0,274
Frequency and Duration of	Use	
Continuous release.		
Emission Days (days/year):		365
	nfluenced by risk management	
Local freshwater dilution factor	or:	10
Local marine water dilution fa		100
	ns affecting Environmental Exposure	
	rocess (initial release prior to RMM):	0,985
Release fraction to wastewater from process (initial release prior to RMM):		0,011
Release fraction to soil from process (initial release prior to RMM):		0,005
Conditions and Measures r	elated to municipal sewage treatment p	lant
Estimated substance remova treatment (%)	I from wastewater via domestic sewage	87
Total efficiency of removal from wastewater after onsite and offsite (domestic treatment plant) RMMs (%)		87
Assumed domestic sewage to		2,0E+03
	elated to external treatment of waste fo	
	sal of waste should comply with applicable	
Estimated amount entering w	aste treatment no greater than: 10%.	
Treat as hazardous waste.		
Type of treatment suitable for	waste: approved landfill.	
Type of treatment suitable for	waste: incineration.	

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

## **Ethyl Proxitol Acetate**

Version Revision Date: SDS Number: Date of last issue: 24.03.2023

2.2 24.11.2023 800001000220 Print Date 01.12.2023

Removal efficiency (%): 99.98.

#### Conditions and measures related to external recovery of waste

External recovery and recycling of waste should comply with applicable local and/or regional regulations.

No suitable recovery methods available.

#### SECTION 3 EXPOSURE ESTIMATION

#### Section 3.1 - Health

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

EGRET Consumer Tool V2

#### **Section 3.2 - Environment**

Used ECETOC TRA model.

SECTION 4	GUIDANCE TO CHECK COMPLIANCE WITH THE
	EXPOSURE SCENARIO

#### Section 4.1 - Health

Predicted exposures are not expected to exceed the DN(M)EL when the Risk Management Measures/Operational Conditions outlined in Section 2 are implemented.

Where other Risk Management Measures/Operational Conditions are adopted, then users should ensure that risks are managed to at least equivalent levels.

#### **Section 4.2 - Environment**

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

Required removal efficiency for wastewater can be achieved using onsite/offsite technologies, either alone or in combination.

Required removal efficiency for air can be achieved using on-site technologies, either alone or in combination.

Further details on scaling and control technologies are provided in SpERC factsheet (http://cefic.org/en/reach-for-industries-libraries.html).