



methanol, methyl alcohol

Safety Data Sheet

Compliant with Regulation (EU) no. 830/2015

ecofuel

Date of revision of the SDS: 01/09/2016

Version of the SDS: 2.0

Replaces the sheet: V 1.0 of
01/12/2010

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

1.1. Product identifier

REACH – type	: Substance
Trade name	: methanol, methyl alcohol
Chemical name	: methanol
IUPAC name	: methanol
EU index number	: 603-001-00-X
EC number	: 200-659-6
CAS number	: 67-56-1
REACH - Registration Number	: 01-2119433307-44-0045
Product code	: CH3OH
Type of product	: Pure substance
Formula	: CH3OH
Product group	: Raw material

1.2. Relevant identified uses and uses advised against

1.2.1. Relevant identified uses

Main category	: Industrial use, Professional use, Consumer use
Specification of professional/industrial use	: Industrial Isolated intermediates
Function or category	: Lubricants and additives, Lab chemicals, Intermediates, Fuels / Fuel additives, Anti-freeze agents

Title	Use descriptors
(1) Manufacture of Methanol	SU3, SU8, SU9, PROC1, PROC2, PROC3, PROC4, PROC8a, PROC8b, PROC15, ERC1, ERC4, ERC6a, ERC6b
(2) Distribution of Methanol	SU3, SU8, SU9, PROC1, PROC2, PROC3, PROC4, PROC8a, PROC8b, PROC9, PROC15, ERC1, ERC2, ESVOC SPERC 1.1b.v1
(3) Formulation & (re)packing of substances and mixtures of Methanol	SU3, SU10, PROC1, PROC2, PROC3, PROC4, PROC5, PROC8a, PROC8b, PROC9, PROC14, PROC15, ERC2, ESVOC SPERC 2.2.v1
(4) Use of Methanol as a fuel - Industrial	SU3, SU10, PROC1, PROC2, PROC3, PROC4, PROC8a, PROC8b, PROC16, PROC19, ERC8b, ESVOC SPERC 7.12a.v1
(5) Use of Methanol as a fuel - Professional	SU22, PROC1, PROC2, PROC3, PROC8a, PROC8b, PROC16, ERC8b, ERC8e, ESVOC SPERC 9.12b.v1
(6) Use of Methanol in cleaning agents - Industrial	SU3, PROC1, PROC2, PROC3, PROC4, PROC7, PROC8a, PROC8b, PROC10, PROC13, ERC4, ESVOC SPERC 4.4a.v1
(7) Use of Methanol in cleaning agents - Professional	SU22, PROC1, PROC2, PROC3, PROC4, PROC8a, PROC8b, PROC10, PROC11, PROC13, ERC8a, ERC8d, ESVOC SPERC 8.4b.v1
(8) Use of Methanol in the lab - Industrial	SU3, SU10, PROC10, PROC15, ERC4
(9) Use of Methanol in the lab - Professional	SU22, PROC10, PROC15, ERC8a, ESVOC SPERC 8.17.v1
(10) Use of methanol for water treatment - Industrial	SU10, PROC1, PROC2, PROC3, PROC4, PROC8a, PROC8b, PROC13, ERC4, ERC6b, ESVOC SPERC 3.22a.v1

methanol, methyl alcohol

Product code: CH3OH

Safety Data Sheet

Compliant with Regulation (EU) no. 830/2015

Date of revision of the SDS: 01/09/2016

Version of the SDS: 2.0

Title	Use descriptors
(11) Use of methanol in oil field drilling and production operations	SU3, PROC1, PROC2, PROC3, PROC4, PROC5, PROC8a, PROC8b, ERC4
(12) Consumer use of Methanol in cleaning agents (e.g. windshield cleaner) and de-icers (liquid non-spray products)	SU21, PC4, PC5, ERC8a, ERC8d, ESVOG SPERC 8.14b.v1
(13) Consumer use of Methanol in cleaning agents (e.g. windshield cleaner) and de-icers (liquid spray products)	SU21, PC4, PC35, ERC8a, ERC8d
(14) Consumer use of methanol as a fuel indoors (Domestic/hobby use e.g. for model engines, fondue sets, etc.)	SU21, PC13
(15) Consumer use of Methanol as a fuel outdoors	SU21, PROC16

Full text of the use descriptors: see paragraph 16.

1.2.2. Uses advised against

The relevant uses are listed above. Other uses are not recommended unless an evaluation has been carried out, prior to this kind of use, that demonstrates that this use will be controlled.

1.3. Identification of the supplier of the safety data sheet

Company name: Ecofuel
Address: Via Maritano, 26
City/Country: San Donato Milanese, MI, IT
Telephone: +39 02 520 56147
e-mail of Service Technician: Reach@ecofuel.eni.com

1.4. Emergency telephone number

Emergency telephone number : National Centre for Toxicological Information +39 0382 24444 (24h) (IT + EN)

SECTION 2: HAZARDS IDENTIFICATION

2.1. Classification of substance/mixture

Classification according to Regulation (EC) no. 1272/2008 \[EU-GHS / CLP]

Flam. Liq. 2 H225
Acute Tox. 3 (Inhalation) H331
Acute Tox. 3 (Dermal) H311
Acute Tox. 3 (Oral) H301
STOT SE 1 H370

Full text of the classification categories and hazard statements: see paragraph 16

Specific concentration limits:

(3 ≤ C < 10) STOT SE 2, H371
(C ≥ 10) STOT SE 1, H370

Adverse physiochemical, human health and environmental effects

No further information available

methanol, methyl alcohol

Product code: CH3OH

Safety Data Sheet

Compliant with Regulation (EU) no. 830/2015

Date of revision of the SDS: 01/09/2016

Version of the SDS: 2.0

2.2. Label Elements

Labelling according to Regulation (EC) no. 1272/2008 [CLP]

Hazard pictograms (CLP)

:



GHS02



GHS06



GHS08

Signal word (CLP)

: Hazard

Hazard Statements (CLP)

: H225 - Highly flammable liquid and vapour
H331 - Toxic if inhaled
H311 - Toxic in contact with skin
H301 - Toxic if swallowed
H370 - Causes damage to organs

Precautionary Statements (CLP)

: P101 - If medical advice is needed, have product container or label at hand.
P102 - Keep out of reach of children.
P210 - Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.
P233 - Keep container tightly closed.
P280 - Wear protective gloves/protective clothing/eye protection/face protection.
P309+P311 - IF exposed or if you feel unwell: Call a POISON CENTER or doctor/physician.
P405 - Store locked up.

Child-proof fastening

: No

Tactile danger signal word

: No

Other:

General indications

: (Not applicable - Classified as hazardous according to (EC) no. 1272/2008)

2.3. Other hazards (not relevant for classification)

Physical / chemical

: When heated, the product may give off vapours that can form flammable and explosive mixtures with air.

Health

: May cause blindness if swallowed.

Environment

: None.

Pollutants

: None.

(air pollutants or other substances)

Other hazards that do not contribute to the classification

: None.

This substance/mixture does not meet the PBT criteria of annex XIII of the REACH regulation.

This substance/mixture does not meet the vPvB criteria of annex XIII of the REACH regulation.

SECTION 3: Composition/information on ingredients

3.1. Substance

Composition - General indications

: Organic

Hazardous substances and/or substances with occupational exposure limits.

: None.

Type of substance

: Mono-constituent

Chemical name

: methanol

CAS number

: 67-56-1

EC number

: 200-659-6; 200-659

EU index number

: 603-001-00-X

methanol, methyl alcohol

Product code: CH3OH

Safety Data Sheet

Compliant with Regulation (EU) no. 830/2015

Date of revision of the SDS: 01/09/2016

Version of the SDS: 2.0

Name	Product identifier	%	Classification according to Regulation (EC) no. 1272/2008 [EU-GHS / CLP]
methanol	(CAS number) 67-56-1 (EC number) 200-659-6; 200-659 (EU index number) 603-001-00-X	>99.8	Flam. Liq. 2, H225 Acute Tox. 3 (Inhalation), H331 Acute Tox. 3 (Dermal), H311 Acute Tox. 3 (Oral), H301 STOT SE 1, H370

Specific concentration limits:

Name	Product identifier	Specific concentration limits
methanol	(CAS number) 67-56-1 (EC number) 200-659-6; 200-659 (EU index number) 603-001-00-X	(3 =< C < 10) STOT SE 2, H371 (C >= 10) STOT SE 1, H370

Full text of the H phrases: see section 16

3.2. Mixture

Not applicable

SECTION 4: First aid measures

4.1. Description of first aid measures

- First aid measures after inhalation : IF INHALED: if breathing is difficult, remove to fresh air and keep at rest in a position comfortable for breathing. Call a POISON CENTER or doctor/physician.
- First aid measures after skin contact : Rinse immediately contaminated clothing and skin with plenty of water before removing clothes. Seek immediate medical attention.
- First aid measures after contact with eyes : IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Do not apply creams or other without a prescription. Seek specialist medical attention or take to hospital.
- First aid measures after ingestion : If vomiting occurs spontaneously, keep the head down to avoid aspiration into the lungs. Administer activated carbon to reduce absorption in the stomach-intestines. Seek immediate medical attention.

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

- Symptoms/injuries (general indications) : Potential chronic effects for health are to be considered. The specific effects of methanol can be: acidosis, ocular toxicity from reduced visual acuity to complete blindness, and death.
- Symptoms/injuries in case of inhalation : Inhalation of vapours may cause headaches, nausea, vomiting and an altered state of conscience.
- Symptoms/injuries after skin contact : Repeated exposure to this material can cause absorption through the skin with a significant risk to health.
- Symptoms/injuries after contact with the eyes : Toxic by eye contact. Reddening, tearing, stinging or oedema.
- Symptoms/injuries in case of swallowing : Toxic if swallowed. The specific effects of methanol can be: acidosis, ocular toxicity from reduced visual acuity to complete blindness, and death.
- Chronic symptoms : May cause damage to organs (optic nerve (nervus opticus), central nervous system) (ingestion).

4.3. Indication of the necessity to consult a doctor immediately and provide special treatments

Do not wait for symptoms to appear. Antidote: Ethanol Take victim straight to hospital.

SECTION 5: Fire-fighting measures

5.1. Extinguishing media

- Appropriate extinguishing medium : Water spray. Carbon dioxide. Dry powder. Foaming agents.
- Inappropriate extinguishing agent : Do not use a compact water jet.

5.2. Special hazards arising from the substance or mixture

- Fire hazard : Highly flammable liquid and vapour. Heating may cause a fire.. Warning: a methanol fire may not be visible to the naked eye.
- Explosion hazard : May form a flammable/explosive vapour-air mixture.
- Hazardous decomposition products in case of fire : Possible formation of toxic fumes.

methanol, methyl alcohol

Product code: CH3OH

Safety Data Sheet

Compliant with Regulation (EU) no. 830/2015

Date of revision of the SDS: 01/09/2016

Version of the SDS: 2.0

Combustion products : Incomplete combustion generates carbon oxide and carbon dioxide, poisonous for animals, and other toxic gases.

5.3. Advice for fire-fighters

Precautionary measures in case of fire : Do not breathe fumes.
Fire-extinguishing instructions : Use jets of water to cool surfaces and containers exposed to flames or heat. In case of serious and widespread fire: evacuate the area. Risk of explosion. Use remote fire-fighting media. If possible, move the containers or drums of the product away from the danger zone.
Special equipment for fire-fighters: : In case of fire or fires in confined or poorly-ventilated spaces, wear flameproof clothing and an autonomous respirator with a full mask that works under positive pressure.
Further information (fire-fighting) : None known.

SECTION 6: Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

General measures : Eliminate all sources of ignition. Stop the leak, if this is possible without exposure to danger.

6.1.1. For non-emergency personnel

Means of protection : Keep unauthorised personnel away from the area of the release. Alert the emergency teams. Avoid direct contact with released material.
Emergency procedures : Alert the emergency teams. Avoid contact with skin, eyes and clothing. Do not breathe gases. Intervention limited to qualified personnel with the appropriate protective equipment. Stay upwind.

6.1.2. For emergency personnel

Means of protection : An autonomous respirator may be used based on the entity of the spill and foreseeable level of exposure. Do not intervene without appropriate protective equipment.
Emergency procedures : In the case of large spills, alert the people in the areas downwind. Ventilate the area. Stop the leak, if this is possible without exposure to danger. Prevent product from going into sewers and water sources. Prevent product from accumulating in confined spaces or below ground level. Eliminate all sources of ignition if safety conditions allow (e.g.: electricity, sparks, fires, flare stacks). Only use non-sparking equipment. Earth the equipment. Contain the product using floating barriers or other devices.

6.2. Environmental precautions

Prevent the substance from entering the sewage system, rivers or other bodies of water. Reduce vapours with water spray. Inform the authorities if the liquid enters the drains or public waters.

6.3. Methods and materials for containment and site clean up

Methods for containment : Contain and absorb the product with soil, sand or other absorbent material. Collect the product and recovered material in appropriate containers. Allocate for recycling or disposal in accordance with Legislative Decree 152/06 and subsequent amendments. Ventilate the area.
Methods for cleaning : Cleaning product: Do not mix with oxidants.

6.4. Reference to other sections

For further information regarding personal protective equipment, refer to the section "Exposure control and personal protection". For further information, see section 13.

SECTION 7: Handling and storage

7.1. Precautions for safe handling

Precautions for safe handling : Avoid contact with skin, eyes and clothing. Do not eat, drink or smoke when using this product. Avoid contact with eyes, skin and clothing. Do not ingest. Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking. Handling of the product can cause the build-up of static charges. Use the correct earthing procedures. Ensure sufficient ventilation.
Hygiene measures : Do not smoke. Do not breathe fumes/mists/vapours. Keep away from food and drink. Always wash hands after handling. Remove contaminated clothing.

methanol, methyl alcohol

Product code: CH3OH

Safety Data Sheet

Compliant with Regulation (EU) no. 830/2015

Date of revision of the SDS: 01/09/2016

Version of the SDS: 2.0

7.2. Conditions for safe storage, including any incompatibilities

Technical measures	: The equipment and systems must meet the required safety standards, in relation to the specific characteristics of risk of the area. Ground/bond container and receiving equipment. Observe appropriate earthing procedures to avoid static electricity. Use only non-sparking tools
Conditions for storage	: Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking. Keep the containers properly sealed and labelled. Keep product in the original container. Keep in a cool place. Protect against sunlight. Store in a well-ventilated place. Make sure that all requirements concerning structures that store and handle flammable products are correctly observed.
Incompatible products	: Keep away from: Acid anhydrides. Acid chlorides. Alkali metals. Oxidising agent. Strong reducing agents.
Incompatible materials	: Do not use metal containers. Do not use zinc containers. Use original containers or other containers approved for this product.
Prohibitions concerning mixed storage	: None known.
Place of storage	: The structure of the storage area and the electrical equipment and systems must meet the required safety standards, in relation to the specific characteristics of risk of the area. Store in a well-ventilated place.
Packaging and containers:	: Do not use containers of aluminium, copper or copper alloys, zinc or zinc-coated steel. Use original containers or other containers approved for this product.
Packaging materials	: Avoid PVC.

7.3. Specific end uses

For further information on personal protective equipment and operating conditions, refer to the section "Exposure scenarios".

SECTION 8: Exposure control/personal protection

8.1. Control parameters

methanol (67-56-1)		
EEC	IOELV TWA (mg/m ³)	260 mg/m ³
EEC	IOELV TWA (ppm)	200 ppm
Italy	Local name	Methanol
Italy	V. L. 8 hours (mg/m ³)	260 mg/m ³
Italy	V. L. 8 hours (ppm)	200 ppm
Switzerland	VME (mg/m ³)	260 mg/m ³
Switzerland	VME (ppm)	200 ppm
Switzerland	VLE (mg/m ³)	1040 mg/m ³
Switzerland	VLE (ppm)	800 ppm
USA - ACGIH	ACGIH TLV®-TWA (ppm)	= 200 ppm
USA - ACGIH	ACGIH TLV®-STEL (ppm)	250 ppm
USA - ACGIH	Commento (ACGIH)	ACGIH 2015
USA - ACGIH	Biological Exposure Indices (BEI)	15 mg/l Methanol in urine

methanol (67-56-1)	
DNEL / DMEL (Workers)	
Acute - systemic effects, skin	40 mg/kg of body weight/day
Acute - systemic effects, inhalation	260 mg/m ³
Acute - local effects, inhalation	260 mg/m ³
Long-term - systemic effects, skin	40 mg/kg of body weight/day
Long-term - systemic effects, inhalation	260 mg/m ³
Long-term - local effects, inhalation	260 mg/m ³
DNEL / DMEL (general public)	
Acute - systemic effects, skin	8 mg/kg of body weight
Acute - systemic effects, inhalation	50 mg/m ³
Acute - systemic effects, oral	8 mg/kg of body weight
Acute - local effects, inhalation	50 mg/m ³
Long-term - systemic effects, oral	8 mg/kg of body weight/day
Long-term - systemic effects, inhalation	50 mg/m ³

methanol, methyl alcohol

Product code: CH3OH

Safety Data Sheet

Compliant with Regulation (EU) no. 830/2015

Date of revision of the SDS: 01/09/2016

Version of the SDS: 2.0

methanol (67-56-1)

Long-term - systemic effects, skin	8 mg/kg of body weight/day
Long-term - local effects, inhalation	50 mg/m ³
PNEC (Water)	
PNEC water (freshwater)	20.8 mg/l
PNEC water (sea water)	2.08 mg/l
PNEC water (intermittent, freshwater)	1540 mg/l
PNEC (sediments)	
Sediments (freshwater)	77 mg/kg dwt
Sediment (sea water)	7.7 mg/kg dwt
PNEC (Soil)	
PNEC soil	100 mg/kg dwt
PNEC (STP)	
Purification system	100 mg/l

Control methods (monitoring) : Refer to Legislative Decree 81/2008 and good industrial hygiene practices.

8.2. Exposure controls

Technical control measures : Provide a good standard of ventilation at the workplace. Minimise exposure to mists/vapours/aerosols.

Personal protective equipment (for industrial or professional use) : Complete flameproof clothing. Face shield. Gloves. At high concentrations of vapour/gas: gas mask. Safety goggles.



Hand protection : Wear: gloves

Type	Material	Permeation	Thickness	Penetration	Standard
Disposable gloves	Nitril rubber (NBR), Butyl rubber, Viton®, PVC (polyvinyl chloride), Teflon	6 (> 480 Minutes)	N/A	N/A	EN 374

Eye protection : In the event of possible contact with the eyes, use goggles or other protective equipment (face shields). If required, refer to standard UNI EN 166. Goggles or protective glasses

Skin and body protection : Anti-static and non-slip safety shoes or boots, resistant to chemical agents. Long-sleeved work clothes, resistant to chemical agents. Refer to the standards UNI EN 340 and the other applicable UNI-EN-ISO standards for the characteristics and performance in relation to the risks of the work area.

Respiratory protection : Wear a mask. Recommended: type AX filter (brown)

Environmental exposure controls : Do not dispose of the product in the environment.

Further information : Do not eat, drink or smoke during use. Do not breathe vapour.

8.3. Hygiene measures

General protective and hygiene measures : Avoid contact with skin and eyes. Avoid breathing vapours or mists. Do not eat, drink or smoke with dirty hands. Do not reuse contaminated garments.

SECTION 9: Physical and chemical properties

9.1. Information on basic physical and chemical properties

Physical state : Liquid

Appearance : Clear liquid.

Molecular mass : 32.04

methanol, methyl alcohol

Product code: CH3OH

Safety Data Sheet

Compliant with Regulation (EU) no. 830/2015

Date of revision of the SDS: 01/09/2016

Version of the SDS: 2.0

Colour	: Colourless.
Odour	: Pungent.
Odour Threshold	: 10 ppm 2.62 mg/m ³
pH	: Not applicable
Evaporation rate rel. To butyl acetate	: 5.9
Melting point	: -97.8 °C
Freezing point	: No data available.
Boiling point	: 64.7 °C
Flash point	: 9.7 °C
Auto-ignition temperature	: 385 °C
Decomposition temperature	: No data available.
Flammability (solids, gas)	: Highly flammable liquid and vapour
Vapour pressure	: 16.9 kPa at 20°C
Relative vapour density at 20 °C	: 0.78, 0.8
Relative Density	: No data available.
Relative gas density	: 1.1
Solubility	: soluble in most organic solvents. Soluble in water. Water: 1000 kPa at 20°C
Log Pow	: No data available.
Log Kow	: < 3
Kinematic viscosity	: No data available.
Dynamic viscosity	: 0.544 - 0.59 mPa.s at 25°C
Explosive properties	: None (based on composition).
Oxidising properties	: None (based on composition).
Flammability/explosive limits	: 6 - 37 vol %

9.2. Further information

Refractive index	: 1.3284 refractive index
Further indications	: No data available.

The data above (9.1 - 9.2) represent typical values and are purely indicative.

SECTION 10: Stability and reactivity

10.1. Reactivity

Highly flammable liquid and vapour. Heating may cause a fire..

10.2. Chemical stability

Stable under normal conditions.

10.3. Possibility of hazardous reactions

May react explosively with sodium methoxide in chloroform and diethyl zinc. May react violently with aluminum alkyls, acetyl bromide, sodium hydroxide in chloroform, cyanuric chloride, nitric acid. Reacts vigorously with oxidants and strong acids. Exposure to high temperatures may cause hazardous polymerisation to occur.

10.4. Conditions to be avoided

Heat. Naked flames.

10.5. Incompatible materials

Strong acids. Acid chlorides. Acid anhydrides. Alkali metals. Strong and reductive oxidants.

10.6. Hazardous decomposition products

Thermal decomposition forms: Toxic fumes.

SECTION 11: Toxicological information**11.1. Information on toxicological effects**

Acute toxicity : Inhalation: Toxic if inhaled. Dermal: Toxic in contact with skin. Oral: Toxic if swallowed.

The symptoms and signs of methanol poisoning, which may not appear until after an asymptomatic period of about 12 to 24 hours, include visual disturbances, nausea, abdominal and muscle pain, dizziness, weakness and disturbances of consciousness ranging from coma to clonic seizures. Visual disturbances generally develop between 12 and 48 h after methanol ingestion and range from mild photophobia and misty or blurred vision to markedly reduced visual acuity and complete blindness. In extreme cases death results. (IPCS/WHO, 1997). The toxic (fatal) dose for pure methanol has been estimated at between 300 and 1000 mg/kg weight for an adult person.

methanol (67-56-1)	
DL50 oral rat	1187 - 2769 mg/kg of body weight (Sprague-Dawley) male/female, oral: gavage
DL50 skin rabbit	17100 mg/kg of body weight Rowe and McCollister (1981)
CL50 inhalation rat (mg/l)	115.9 – 130.7 mg/l/4h
CL50 inhalation rat (ppm)	64000 ppm/4h OECD, 2004

Skin corrosion/irritation : Not classified (data conclusive, not sufficient for classification)
Repeated and prolonged contact with skin may cause reddening of the skin, irritation and allergic dermatitis.
pH: Not applicable

Serious eye damage/serious eye irritation : Not classified (data conclusive, not sufficient for classification)
Eye contact can cause temporary reddening and irritation.
pH: Not applicable

Respiratory or skin sensitisation : Not classified (data conclusive, not sufficient for classification)
Guinea-pig
not sensitising.

Germ cell mutagenicity : Not classified (data conclusive, not sufficient for classification)
Mouse
Chromosome aberration test
Negative

Carcinogenicity : Not classified (data conclusive, not sufficient for classification)

Reproductive toxicity : Not classified (data conclusive, not sufficient for classification)
rat
Developmental toxicity; teratogenicity: the results of the tests showed positive effects only with doses that have caused maternal toxicity. Classification is not necessary.

Specific target organ toxicity (single exposure) : optic nerve
The toxic (fatal) dose for pure methanol has been estimated at between 300 and 1000 mg/kg weight for an adult person.
The minimum dose that can cause permanent visual defects has not been identified. (IPCS/WHO (1997)).

Specific target organ toxicity (repeated exposure) : May cause damage to organs (optic nerve) (Inhalation) (data conclusive, not sufficient for classification)
May cause: Depression of the central nervous system

methanol (67-56-1)	
LOAEL (taken orally, rat, 90 days)	2340 mg/kg of body weight/day
LOAEC (inhalation, rat, vapour, 90 days)	1.3 mg/l
NOAEC (inhalation, rat, vapour, 90 days)	13 mg/m ³
Further indications	(OECD 451)

Aspiration hazard : Not classified (data conclusive, not sufficient for classification)

Potentially dangerous effects on human health and potential symptoms : The specific effects of methanol can be: acidosis, ocular toxicity from reduced visual acuity to complete blindness, and death.

Further information : Likely exposure routes: inhalation, skin and eyes.

methanol, methyl alcohol

Product code: CH3OH

Safety Data Sheet

Compliant with Regulation (EU) no. 830/2015

Date of revision of the SDS: 01/09/2016

Version of the SDS: 2.0

SECTION 12: Ecological information

12.1. Toxicity

Ecology - general : The product is not considered to be hazardous to aquatic organisms and does not cause long-term adverse effects in the aquatic environment.

methanol (67-56-1)	
CL50 fish 1	15400 mg/l <i>Lepomis macrochirus</i> - 96 hours (EPA-660/3-75-009, 1975)
CE50 Daphnia 1	> 10000 mg/l <i>Daphnia magna</i> - 48 hours - DIN 38412 Teil 11
EC50 72h Algae [mg/l] 1	22000 mg/l <i>Pseudokirchnerella subcapitata</i> - 72 hours - OECD Guideline 201
NOEC (chronic)	7900 mg/l <i>Oryzias latipes</i> - 200 hours - Gonz��les-Doncel, M. et al. (2008)
NOEL Chronic, plants, long-term. Inhalation, local	Value 0.4 - 2.5 mg/m ³ (14 days, OECD, 2004, Developmental toxicity/teratogenicity)

12.2. Persistence and degradability

methanol (67-56-1)	
Persistence and degradability	Readily biodegradable. Half-life: 17 days.
Biodegradation	71.5 - 95 % (freshwater, wastewater), 5 and 20 days respectively

12.3. Bioaccumulation potential

methanol (67-56-1)	
BCF fish 1	< 10 mg/kg <i>Cyprinus carpio</i> and <i>Leuciscus idus</i> - Hansch and Leo 1979, Gluth et al. 1985, Freitag et al. 1985, Howard 1990
Log Kow	< 3
Bioaccumulation potential	Weak bioaccumulative potential.

12.4. Mobility in soil

methanol (67-56-1)	
Log Koc	2.75
Ecology - soil	Weak adsorption.

12.5. Results of PBT and vPvB assessment

methanol (67-56-1)	
This substance/mixture does not meet the PBT criteria of annex XIII of the REACH regulation.	
This substance/mixture does not meet the vPvB criteria of annex XIII of the REACH regulation.	

12.6. Other adverse effects

Other adverse effects : None known.

SECTION 13: Disposal considerations

13.1. Waste treatment methods

Local legislation (waste) : Disposal in accordance with the legal provisions in force/Dispose according to Legislative Decree 152/06 and subsequent amendments

Waste treatment procedure : Do not dump the product in sewage systems, wells or water courses. Collect and dispose of through authorised collectors (Legislative Decree 152/2006 and related legislation).

Recommendations on disposal : Do not pierce or burn, even after use. Do not discharge into drains and water courses.

Further indications : Do not pierce, cut, grind, weld, braze, burn or incinerate empty containers or drums unless they have been suitably cleaned. Empty containers may contain flammable product residues. Dispose of empty containers that have not been cleaned in conditions of safety, in accordance with Legislative Decree 152/2006 and subsequent amendments

methanol, methyl alcohol

Product code: CH3OH

Safety Data Sheet

Compliant with Regulation (EU) no. 830/2015

Date of revision of the SDS: 01/09/2016

Version of the SDS: 2.0

code H

: H3-A - «Highly flammable»:

— liquid substances and preparations having a flash point below 21 °C (including extremely flammable liquids), or

— substances and preparations which may become hot and finally catch fire in contact with air at ambient temperature without any application of energy, or

— solid substances and preparations which may readily catch fire after brief contact with a source of ignition and which continue to burn or to be consumed after removal of the source of ignition, or

— gaseous substances and preparations which are flammable in air at normal pressure, or






— substances and preparations which, in contact with water or damp air, evolve highly flammable gases in dangerous quantities.

H6 - «Toxic»

— substances and preparations (including very toxic substances and preparations) which, if they are inhaled or ingested or if they penetrate the skin, may involve serious, acute or chronic health risks and even death.

SECTION 14: Transport information

Pursuant to the requirements of ADR / RID / ADNR / IMDG / ICAO / IATA

ADR	IMDG	IATA	ADN	RID
14.1. UN number				
1230	1230	1230	1230	1230
14.2. UN shipment name				
METHANOL	METHANOL	METHANOL	METHANOL	METHANOL
Description of the transport document				
UN 1230 METHANOL, 3 (6.1), II, (D/E)	UN 1230 METHANOL, 3 (6.1), II			
14.3. Transport hazard classes				
3 (6.1)	3 (6.1)	3 (6.1)	3 (6.1)	3 (6.1)
				
14.4. Packing group				
II	II	II	II	II
14.5. Environmental hazards				
Environmentally hazardous: No	Environmentally hazardous: No Marine pollution: No	Environmentally hazardous: No	Environmentally hazardous: No	Environmentally hazardous: No
Other information (transport): None.				

14.6. Special precautions for users

- Land transport

Regulation for transport (ADR) : Subject to requirements

Classification code (UN) : FT1

Limited quantities (ADR) : 1L

Excepted quantities (ADR) : E2

Transport category (ADR) : 2

Hazard number (Kemler code) : 336

Orange panel :



Tunnel restriction code (ADR) : D/E

methanol, methyl alcohol

Product code: CH3OH

Safety Data Sheet

Compliant with Regulation (EU) no. 830/2015

Date of revision of the SDS: 01/09/2016

Version of the SDS: 2.0

- Maritime transport

Regulation for transport (IMDG) : Subject to requirements
EmS-No. (Fire class) : F-E
EmS-No. (Spillage) : S-D
Stowage category (IMDG) : B

- Air transport

Regulation for transport (ICAO) : Subject to requirements
Excepted quantities for passenger and cargo planes (IATA) : E2
Max net quantities of limited quantities for passenger and cargo planes (IATA) : 1L

- Transport by inland waterways

Regulation for transport (ADN) : Subject to requirements
Classification code (ADN) : FT1
Limited quantities (ADN) : 1 L
Excepted quantities (ADN) : E2

- Transport by rail

Regulation for transport (RID) : Subject to requirements
Classification code (RID) : FT1
Limited quantities (RID) : 1L
Excepted quantities (RID) : E2
Transport category (RID) : 2
Hazard number (RID) : 336

14.7. Transport of bulk material in accordance with annex II of MARPOL 73/78 and the IBC code

IBC name of the product : METHANOL
Type of vessel : Type 3
Pollutant category : Y

SECTION 15: Regulatory information

15.1. Standards and legislation on health, safety and environment specific to the substance or mixture

15.1.1. EU regulations

Authorisations and/or restrictions on use (Annex XVII):

3. The substances or liquid mixtures considered hazardous according to Directive 1999/45/EC or that correspond to the criteria of one of the following hazard classes or categories in annex I of EC regulation no. 1272/2008.	methanol
40. Substances classified as category 1 or 2 flammable gases, category 1, 2 or 3 flammable liquids, category 1 or 2 flammable solids, substances and mixtures which, in contact with water, evolve category 1, 2 or 3 flammable gases, category 1 pyrophoric liquids or category 1 pyrophoric solids, even if not listed in section 3 of annex VI of Regulation (EC) no. 1272/2008.	methanol

methanol is not in the REACH Candidate List

methanol is not in annex XIV of the REACH List

Applicable legislation of the European Union : Regulation (EC) No. 1272/2008 of the European Parliament and of the Council of 16 December 2008 concerning the classification, labelling and packaging of substances and mixtures amending and repealing Directives 67/548/EEC and 1999/45/EC, and amending Regulation (EC) No 1907/2006 (et sequens). 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) (et sequens).

15.1.2. Domestic standards

methanol, methyl alcohol

Product code: CH3OH

Safety Data Sheet

Compliant with Regulation (EU) no. 830/2015

Date of revision of the SDS: 01/09/2016

Version of the SDS: 2.0

Germany

Reference to Annex VwVwS : Water hazard class (WGK) (D) 1, low hazard to waters (Classification according to VwVwS, annex 2; No WGK 145)

12th Order implementing the federal law : Not subject to the 12th BImSchV (decree on protection against emissions) on Emissions - 12.BImSchV (Regulation on major accidents)

Denmark

Fire hazard class : Class I-1

Unit of storage : 1 litre

Notes on classification : F <Flam. Liq. 2>; The emergency management guidelines for the storage of flammable liquids must be observed

Recommendations of the Danish regulation : Persons under 18 years of age are not allowed to work with this product
Pregnant and lactating women who work with the product must not come in direct contact with it

15.2. Chemical Safety Assessment

A chemical safety assessment was carried out.

SECTION 16: Further information

Abbreviations and acronyms:

ADN	European agreement governing the international carriage of dangerous goods by inland waterways
ADR	European agreement governing the international carriage of dangerous goods by road
BCF	Bioconcentration Factor
DNEL	Derived No-Effect Level
EC50	Half maximal effective concentration
IARC	International Agency for Research on Cancer
IATA	International Air Transport Association
IMDG	International Maritime Dangerous Goods
LC50	Median lethal concentration of a group of test animals
LD50	Median lethal dose that kills 50 percent of a test sample
LOAEL	Lowest Observed Adverse Effect Level
NOAEC	No Observed Adverse Effect Concentration
NOAEL	No Observed Adverse Effect Level
NOEC	No Observed Effect Concentration
OCSE	Organisation for economic co-operation and development
PBT	Persistent, Bioaccumulative and Toxic substance
PNEC	Predicted No Effect Concentration
REACH	Registration, Evaluation, Authorisation & restriction of CHemicals, Regulation (EC) no. 1907/2006.
STP	Sewage Treatment Plant
RID	Regulations governing the international carriage of dangerous goods by rail
SDS	Safety Data Sheet
vPvB	Very Persistent and very Bioaccumulative

Data sources : Regulation (EC) No. 1272/2008 of the European Parliament and of the Council of 16 December 2008 concerning the classification, labelling and packaging of substances and mixtures amending and repealing Directives 67/548/EEC and 1999/45/EC, and amending Regulation (EC) No 1907/2006 (et sequens).

Suggested vocational training : Provide professional workers with appropriate training in the use of Personal Protective Equipment (PPE), in relation to the information in this safety data sheet.

Full text of the H and EUH phrases:

Acute Tox. 3 (Dermal)	Acute toxicity (contact with skin), category 3
Acute Tox. 3 (Inhalation)	Acute toxicity in case of inhalation, category 3
Acute Tox. 3 (Oral)	Acute toxicity (oral), category 3
Flam. Liq. 2	Flammable liquids Category 2
STOT SE 1	Specific target organ toxicity (single exposure), category 1
H225	Highly flammable liquid and vapour
H301	Toxic if swallowed
H311	Toxic in contact with skin

methanol, methyl alcohol

Product code: CH3OH

Safety Data Sheet

Compliant with Regulation (EU) no. 830/2015

Date of revision of the SDS: 01/09/2016

Version of the SDS: 2.0

H331	Toxic if inhaled
H370	Causes damage to organs
ERC1	Manufacture of substances
ERC2	Formulation of preparations
ERC4	Industrial use of processing aids in processes and products, not becoming part of articles
ERC6a	Industrial use resulting in manufacture of another substance (use of intermediates)
ERC6b	Industrial use of reactive processing aids
ERC8a	Wide dispersive indoor use of processing aids in open systems
ERC8b	Wide dispersive indoor use of reactive substances in open systems
ERC8d	Wide dispersive outdoor use of processing aids in open systems
ERC8e	Wide dispersive outdoor use of reactive substances in open systems
ERC9a	Wide dispersive indoor use of substances in closed systems
ESVOC SPERC 1.1b.v1	Distribution: Industrial (SU3)
ESVOC SPERC 2.2.v1	Formulation and (re)packing of substances and their mixtures: Industrial (SU10)
ESVOC SPERC 3.22a.v1	Water treatment products: Industrial (SU10)
ESVOC SPERC 4.4a.v1	Use in cleaning products: Industrial (SU3)
ESVOC SPERC 6.1a.v1	Manufacture of the substance: Industrial (SU8, SU9)
ESVOC SPERC 7.12a.v1	Use as a fuel: Industrial (SU3)
ESVOC SPERC 8.14b.v1	De-icing and antifreeze applications: Consumer (SU21)
ESVOC SPERC 8.17.v1	Lab products: Professional (SU22)
ESVOC SPERC 8.4b.v1	Use in cleaning products: Professional (SU22)
ESVOC SPERC 8.4c.v1	Use in cleaning products: Consumer (SU21)
ESVOC SPERC 9.12b.v1	Use as a fuel/fuel additive: Professional (SU 22)
ESVOC SPERC 9.12c.v1	Use as a fuel/fuel additive: Consumer (SU21)
PC13	Fuels/fuel additives
PC24	Lubricants, greases and release products
PC3	Air care products
PC35	Washing and cleaning products (including solvent based products)
PC38	Welding and soldering products
PC4	Antifreeze and de-icing products
PC5	Artists supply and hobby preparations
PC9a	Coatings and paints, thinners, paint removers
PROC1	Use in a closed process, no likelihood of exposure (no sampling)
PROC10	Roller application or brushing
PROC11	Non-industrial spraying
PROC13	Treatment of articles by dipping and pouring
PROC14	Production of preparations* or articles by tableting, compression, extrusion, pelletisation
PROC15	Use as laboratory reagent
PROC16	Using material as fuel sources, limited exposure to unburned product to be expected
PROC19	Hand mixing with intimate contact and only personal protective equipment (PPE) available
PROC2	Use in closed, continuous process with occasional controlled exposure (with sampling)
PROC3	Use in closed bath process (synthesis or formulation) (with sampling)
PROC4	Use in bath and other process (synthesis) where opportunity for exposure arises
PROC5	Mixing or blending in batch processes for formulation of preparations and articles (multistage and/or significant contact)
PROC7	Industrial spraying
PROC8a	Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non-dedicated facilities
PROC8b	Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities
PROC9	Transfer of substance or preparation into small containers (dedicated filling line, including weighing)
SU10	Formulation [mixing] of preparations and/or repackaging (excluding alloys)
SU21	Consumer uses: private households (= general public = consumers)
SU22	Professional uses: public domain (administration, education, entertainment, services, craftsmen)

methanol, methyl alcohol

Product code: CH3OH

Safety Data Sheet

Date of revision of the SDS: 01/09/2016

Compliant with Regulation (EU) no. 830/2015

Version of the SDS: 2.0

SU3	Industrial uses: use of substances on their own or in preparations* for industrial manufacturing
SU8	Manufacture of bulk, large scale chemicals (including petroleum products)
SU9	Manufacture of fine chemicals

SDS EU (REACH Annex II) eni 2015

This information is based on our current knowledge and describes the product only for the purposes of protection of health, safety and the environment. The information does not, therefore, lay down any guarantees

ANNEX

EXPOSURE SCENARIOS

Index

1. Manufacture of Methanol
2. Distribution of Methanol
3. Formulation & (re)packing of substances and mixtures of Methanol
4. Use of Methanol as a fuel - Industrial
5. Use of Methanol as a fuel - Professional
6. Use of Methanol in cleaners - Industrial
7. Use of Methanol in cleaners - Professional
8. Use of Methanol in the lab - Industrial
9. Use of Methanol in the lab - Professional
10. Use of Methanol for water treatment - Industrial
11. Use of Methanol in oil field drilling and production operations
12. Consumer use of Methanol in cleaning agents (e.g. windshield cleaner) and de-icers (liquid non-spray products)
13. Consumer use of Methanol in cleaning agents (e.g. windshield cleaner) and de-icers (liquid spray products)
14. Consumer use of Methanol as a fuel indoors (Domestic/hobby use e.g. for model engines, fondue sets, etc.)
15. Consumer use of Methanol as a fuel outdoors

methanol, methyl alcohol

Safety Data Sheet

Compliant with Regulation (EU) no. 830/2015

Product code: CH3OH

Date of revision of the SDS: 01/09/2016

Version of the SDS: 2.0

1. Manufacture of Methanol

Section 1	
Title	Manufacture of Methanol
Use descriptors	Use sector: Industrial (SU3, 8, 9)
	Process Categories: PROC1, PROC2, PROC3, PROC4, PROC8a, PROC8b, PROC15
	Environmental Release Categories: ERC1, ERC4, ERC6a, ERC6b
Processes, tasks, activities covered	Manufacture of Methanol or use as an intermediate or process chemical or extraction agent. Includes recycling/ recovery, material transfers, storage, sampling, associated laboratory activities, maintenance and loading (including marine vessel/barge, road/rail car and bulk container).
Section 2	
Operational conditions and risk management measures	
Section 2.1	
Control of worker exposure	
Product characteristics	
Physical form of product	Liquid, vapour pressure > 10 kPa [OC5].
Amounts used	<i>Not applicable</i>
Frequency and duration of use	Covers daily exposures up to 8 hours (unless stated differently) [G2]
Human factors not influenced by risk management	<i>Not applicable</i>
Other Operational Conditions affecting worker exposure	Assumes use at not > 20oC above ambient [G15]; Assumes a good basic standard of occupational hygiene is implemented [G1].
Exposure Scenarios	
Risk Management Measures {phrases between brackets provide additional, non-mandatory risk management advice}.	
General exposures (closed systems) [CS15].	No specific measures identified [EI18]. {Provide a good standard of general ventilation (not less than 3 to 5 air changes per hour) [E11]} {Wear suitable gloves tested to EN374 [PPE15]}.
General exposures (closed systems) [CS15]. With sample collection [CS56]. With occasional controlled exposure [CS137]	Provide extract ventilation to points where emissions occur [E54]. {Wear suitable gloves tested to EN374 [PPE15]}.
General exposures (closed systems) [CS15]. Use in contained batch processes [CS37].	Provide extract ventilation to points where emissions occur [E54]. {Wear suitable gloves tested to EN374 [PPE15]}.
General exposures (open systems) [CS16]. Batch process [CS55]. With sample collection [CS56]. Process sampling [CS2].	Provide extract ventilation to points where emissions occur [E54]. {Wear suitable gloves tested to EN374 [PPE15]}.
Laboratory activities [CS36].	Provide extract ventilation to points where emissions occur [E54]. {Use a sampling system designed to control exposure} {Ensure operatives are trained to minimise exposures [EI119]}. {Wear suitable gloves tested to EN374 [PPE15]}.
	Handle in a fume cupboard or under extract ventilation [E83]. {Wear suitable gloves tested to EN374 [PPE15]}.
Bulk transfers [CS14]. (open systems) [CS108] With potential for aerosol generation [CS138].	Ensure material transfers are under containment or extract ventilation [E66]. {Clear transfer lines prior to de-coupling [E39]}. {Wear suitable gloves tested to EN374 [PPE15]}.
Bulk transfers [CS14]. (closed systems) [CS107];	Ensure material transfers are under containment or extract ventilation [E66]. {Clear transfer lines prior to de-coupling [E39]}. {Wear suitable gloves tested to EN374 [PPE15]}.

methanol, methyl alcohol

Product code: CH3OH

Safety Data Sheet

Compliant with Regulation (EU) no. 830/2015

Date of revision of the SDS: 01/09/2016

Version of the SDS: 2.0

Equipment cleaning and maintenance [CS39].	Drain down and flush system prior to equipment break-in or maintenance [E55]. {Provide a good standard of general ventilation (not less than 3 to 5 air changes per hour) } {Clear spills immediately [C&H13]}. {Wear suitable gloves tested to EN374 [PPE15]}. {Retain drain downs in sealed storage pending disposal or for subsequent recycle [ENVT4]}.
Storage [CS67] With occasional controlled exposure [CS137]	Provide extract ventilation to points where emissions occur [E54]. {Avoid dip sampling [E42]}. {Provide a good standard of general ventilation (not less than 3 to 5 air changes per hour) } {Wear suitable gloves tested to EN374 [PPE15]}.
Section 2.2 Control of environmental exposure	
	No exposure assessment presented for the environment. [G40]
Section 3 Exposure Estimation	
3.1. Health	The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated [G21]
Section 4 Guidance to check compliance with the Exposure Scenario	
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 [G22].
	Where other Risk Management Measures/Operational Conditions are adopted, then users should ensure that risks are managed to at least equivalent levels [G23].

methanol, methyl alcohol

Safety Data Sheet

Compliant with Regulation (EU) no. 830/2015

Product code: CH3OH

Date of revision of the SDS: 01/09/2016

Version of the SDS: 2.0

2. Distribution of Methanol

Section 1	Exposure Scenario Title
Title	Distribution of Methanol
Use Descriptors	Use sector: Industrial (SU3, SU8, SU9) Process Categories: PROC1, PROC2, PROC3, PROC4, PROC8a, PROC8b, PROC9, PROC15 Environmental Release Categories: ERC1 (loading) ERC2 (repacking)
Processes, tasks, activities covered	Loading (including marine vessel/barge, rail/road car and IBC loading) and repacking (including drums and small packs) of substance, including its distribution and associated laboratory activities
Section 2	Operational conditions and risk management measures
Section 2.1	Control of worker exposure
Product characteristics	
Physical form of product	Liquid, vapour pressure > 10 kPa [OC5].
Concentration of substance in product	Covers percentage substance in the product up to 100 % (unless stated differently) [G13].
Amounts used	Not applicable
Frequency and duration of use	Covers daily exposures up to 8 hours (unless stated differently) [G2]
Human factors not influenced by risk management	Not applicable
Other Operational Conditions affecting worker exposure	Assumes use at not > 20°C above ambient temperature, unless specified otherwise [G15]; Assumes a good basic standard of occupational hygiene is implemented [G1].
Exposure Scenarios	Risk Management Measures {phrases between brackets provide additional, non-mandatory risk management advice}.
General exposures (closed systems) [CS15].	No specific measures identified [EI18]. {Wear suitable gloves tested to EN374 [PPE15]}.
General exposures (closed systems) [CS15]; With sample collection [CS56]. With occasional controlled exposure [CS140]	Provide extract ventilation to points where emissions occur [E54]. {Wear suitable gloves tested to EN374 [PPE15]}.
General exposures (closed systems) [CS15]. Use in contained batch processes [CS37].	Provide extract ventilation to points where emissions occur [E54]. {Wear suitable gloves tested to EN374 [PPE15]}.
General exposures (open systems) [CS16]. Batch process [CS55]. With sample collection [CS56].	Provide extract ventilation to points where emissions occur [E54]. {Wear suitable gloves tested to EN374 [PPE15]}.
Product sampling (CS137)	Provide extract ventilation to points where emissions occur [E54]. {Wear suitable gloves tested to EN374 [PPE15]}.
Laboratory activities [CS36].	Provide extract ventilation to points where emissions occur [E54]. {Handle in a fume cupboard or under extract ventilation [E83]}. {Wear suitable gloves tested to EN374 [PPE15]}.
Bulk transfers [CS14]. (closed systems) [CS107]	Ensure material transfers are under containment or extract ventilation [E66]. {Ensure operation is undertaken outdoors [E69]}. {Clear transfer lines prior to de-coupling [E39]} {Wear suitable gloves tested to EN374 [PPE15]}.
Bulk transfers [CS14]. (open systems) [CS108]	Ensure material transfers are under containment or extract ventilation [E66]. {Ensure operation is undertaken outdoors [E69]}. {Clear transfer lines prior to de-coupling [E39]} {Wear suitable gloves tested to EN374 [PPE15]}.
Drum and small package filling [CS6].	Provide extract ventilation to points where emissions occur [E54]. {Put lids on containers immediately after use [E9]}; {Clear spills immediately [C&H13]}. {Wear suitable gloves tested to EN374 [PPE15]}.
Equipment cleaning and maintenance [CS39].	Drain down and flush system prior to equipment break-in or maintenance [E55]. {Transfer via enclosed lines [E52]}. {Wear suitable gloves tested to EN374 [PPE15]}. {Retain drain downs in sealed storage pending disposal or for subsequent recycle [ENVT4]}.
Storage [CS67] With occasional controlled exposure [CS140]	Provide extract ventilation to points where emissions occur [E54]. {Wear suitable gloves tested to EN374 [PPE15]}.
Section 2.2	Control of environmental exposure
	No exposure assessment presented for the environment. [G40]

methanol, methyl alcohol

Product code: CH3OH

Safety Data Sheet

Compliant with Regulation (EU) no. 830/2015

Date of revision of the SDS: 01/09/2016

Version of the SDS: 2.0

Section 3	Exposure Estimate
3.1. Health	The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated [G21]
Section 4	Guidance to check compliance with the Exposure Scenario
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 [G22].
	Where other Risk Management Measures/Operational Conditions are adopted, then users should ensure that risks are managed to at least equivalent levels [G23].

3. Formulation & (re)packing of substances and mixtures of Methanol

Section 1	Exposure Scenario Title
Title	Formulation & (re)packing of substances and mixtures of Methanol
Use Descriptors	Use sector: Industrial (SU3, SU10)
	Process Categories: PROC1, PROC2, PROC3, PROC4, PROC5, PROC8a, PROC8b, PROC9, PROC14, PROC15
	Environmental Release Categories: ERC2
Processes, tasks, activities covered	Formulation, packing and re-packing of the substance and its mixtures in batch or continuous operations, including storage, materials transfers, mixing, large and small scale packing, 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 > 10 kPa [OC5].
Concentration of substance in product	Covers percentage substance in the product up to 100 % (unless stated differently) [G13].
Amounts used	<i>Not applicable</i>
Frequency and duration of use	Covers daily exposures up to 8 hours (unless stated differently) [G2]
Human factors not influenced by risk management	<i>Not applicable</i>
Other Operational Conditions affecting worker exposure	Assumes use at not > 20oC above ambient [G15]; Assumes a good basic standard of occupational hygiene is implemented [G1].
Exposure Scenarios	Risk Management Measures {phrases between brackets provide additional, non-mandatory risk management advice}.
General exposures (closed systems) [CS15].	No specific measures identified [EI18]. {Wear suitable gloves tested to EN374 [PPE15]}.
General exposures (closed systems) [CS15]. With sample collection [CS56]. With occasional controlled exposure [CS140]	Provide extract ventilation to points where emissions occur [E54]. {Wear suitable gloves tested to EN374 [PPE15]}.
General exposures (closed systems) [CS15]. Use in contained batch processes [CS37].	Provide extract ventilation to points where emissions occur [E54]. {Wear suitable gloves tested to EN374 [PPE15]}.
General exposures (open systems) [CS16]. Batch process [CS55]. With sample collection [CS56]. With potential for aerosol generation [CS138].	Provide extract ventilation to points where emissions occur [E54]. {Wear suitable gloves tested to EN374 [PPE15]}.
Batch processes at elevated temperatures [CS136].	Provide extract ventilation to points where emissions occur [E54]. {Wear suitable gloves tested to EN374 [PPE15]}.
Process sampling [CS2].	Provide extract ventilation to points where emissions occur [E54]. {Avoid dip sampling [E42]}. {Wear suitable gloves tested to EN374 [PPE15]}.
Laboratory activities [CS36].	Handle in a fume cupboard or under extract ventilation [E83]. {Wear suitable gloves tested to EN374 [PPE15]}.
Bulk transfers [CS14].	Provide extract ventilation to points where emissions occur [E54]. {Clear transfer lines prior to de-coupling [E39]}. {Clear spills immediately [C&H13]}. {Wear suitable gloves tested to EN374 [PPE15]}. {Return IBCs or tanks to supplier for re-use [ENV7]}.
Mixing operations (open systems) [CS30]. With potential for aerosol generation [CS138].	Provide extract ventilation to points where emissions occur [E54]. {Wear suitable gloves tested to EN374 [PPE15]}.
Manual [CS34]. Transfer from/pouring from containers [CS22].	Provide extract ventilation to points where emissions occur [E54]. {Wear suitable gloves tested to EN374 [PPE15]}.
Drum/batch transfers [CS8].	Provide extract ventilation to points where emissions occur [E54]. {Avoid spillage when withdrawing pump [C&H16]}. {Wear suitable gloves tested to EN374 [PPE15]}.
Production or preparation or articles by tableting, compression, extrusion or pelletisation [CS100]	Provide extract ventilation to points where emissions occur [E54]. {Wear suitable gloves tested to EN374 [PPE15]}.

methanol, methyl alcohol

Product code: CH3OH

Safety Data Sheet

Compliant with Regulation (EU) no. 830/2015

Date of revision of the SDS: 01/09/2016

Version of the SDS: 2.0

Drum and small package filling [CS6].	Ensure material transfers are under containment or extract ventilation [E66]. {Clear spills immediately [C&H13]}. {Put lids on containers immediately after use [E9]}. {Wear suitable gloves tested to EN374 [PPE15]}.
Equipment cleaning and maintenance [CS39].	Drain down and flush system prior to equipment break-in or maintenance [E55].{Transfer via enclosed lines [E52]}. {Wear suitable gloves tested to EN374 [PPE15]}. {Retain drain downs in sealed storage pending disposal or for subsequent recycle [ENVT4]}.
Storage [CS67] With occasional controlled exposure [CS140]	Provide extract ventilation to points where emissions occur [E54]. {Avoid dip sampling [E42]}. {Wear suitable gloves tested to EN374 [PPE15]}.
Section 2.2	Control of environmental exposure
	No exposure assessment presented for the environment. [G40]
Section 3	Exposure Estimate
3.1. Health	The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated [G21].
Section 4	Guidance to check compliance with the Exposure Scenario
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 [G22].
	Where other Risk Management Measures/Operational Conditions are adopted, then users should ensure that risks are managed to at least equivalent levels [G23].

4. Use of Methanol as a fuel - Industrial

Section 1	Exposure Scenario Title
Title	Use of Methanol as a fuel - Industrial
Use Descriptors	Use sector: Industrial (SU3, SU10)
	Process Categories: PROC1, PROC2, PROC3, PROC4, PROC8a, PROC8b, PROC16, PROC19
	Environmental Release Categories: ERC8B
Processes, tasks, activities covered	Covers the use as a fuel (or fuel additive) and includes activities associated with its transfer, use, equipment maintenance and handling of waste.
Section 2	Operational conditions and risk management measures
Section 2.1	Control of worker exposure
Product characteristics	
Physical form of product	Liquid, vapour pressure > 10 kPa [OC5].
Concentration of substance in product	Covers percentage substance in the product up to 100 % (unless stated differently) [G13].
Amounts used	<i>Not applicable</i>
Frequency and duration of use	Covers daily exposures up to 8 hours (unless stated differently) [G2]
Human factors not influenced by risk management	<i>Not applicable</i>
Other Operational Conditions affecting worker exposure	Assumes use at not > 20oC above ambient [G15]; Assumes a good basic standard of occupational hygiene is implemented [G1].
Exposure Scenarios	Risk Management Measures {phrases between brackets provide additional, non-mandatory risk management advice}.
Bulk transfers [CS14].	No specific measures identified [EI18]. {Wear suitable gloves tested to EN374 [PPE15]}.
Drum/batch transfers [CS8].	Provide extract ventilation to points where emissions occur [E54]. {Wear suitable gloves tested to EN374 [PPE15]}.
General exposures (closed systems) [CS15].	No specific measures identified [EI18]. {Wear suitable gloves tested to EN374 [PPE15]}.
General exposures (closed systems) [CS15]. With occasional controlled exposure [CS137]	Provide extract ventilation to points where emissions occur [E54]. {Wear suitable gloves tested to EN374 [PPE15]}.
General exposures (closed systems) [CS15]. Batch process [CS55].	Provide extract ventilation to points where emissions occur [E54]. {Wear suitable gloves tested to EN374 [PPE15]}.
Use as a fuel [GEST12_I](closed systems) [CS107]	No specific measures identified [EI18]. {Wear suitable gloves tested to EN374 [PPE15]}.
Equipment maintenance [CS5].	Drain down and flush system prior to equipment break-in or maintenance [E55]. {Retain drain downs in sealed storage pending disposal or for subsequent recycle [ENV4]}.{Wear suitable gloves tested to EN374 [PPE15]}.
Vessel and container cleaning [CS103]	Provide extract ventilation to points where emissions occur [E54]. {Wear suitable gloves tested to EN374 [PPE15]}.
Storage [CS67]	{Wear suitable gloves tested to EN374 [PPE15]}.
Storage [CS67] With occasional controlled exposure [CS137]	Provide extract ventilation to points where emissions occur [E54]. {Wear suitable gloves tested to EN374 [PPE15]}.
Disposal of wastes [CS28].	Provide extract ventilation to points where emissions occur [E54]. {Wear suitable gloves tested to EN374 [PPE15]}.
Section 2.2	Control of environmental exposure
	No exposure assessment presented for the environment. [G40]
Section 3	Exposure Estimate
3.1. Health	The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated [G21].
Section 4 TBD	Guidance to check compliance with the Exposure Scenario
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 [G22].

methanol, methyl alcohol

Product code: CH3OH

Safety Data Sheet

Compliant with Regulation (EU) no. 830/2015

Date of revision of the SDS: 01/09/2016

Version of the SDS: 2.0

Where other Risk Management Measures/Operational Conditions are adopted, then users should ensure that risks are managed to at least equivalent levels [G23].

5. Use of Methanol as a fuel - Professional

Section 1	Exposure Scenario Title
Title	Use of Methanol as a fuel - Professional
Use Descriptors	Use sector: Professional (SU22)
	Process Categories: PROC1, PROC2, PROC3, PROC8a, PROC8b, PROC16
	Environmental Release Categories: ERC 8B, ERC 8E
Processes, tasks, activities covered	Covers the use as a fuel (or fuel additive) and includes activities associated with its transfer, use, equipment maintenance and handling of waste.
Section 2	Operational conditions and risk management measures
Section 2.1	Control of worker exposure
Product characteristics	
Physical form of product	Liquid, vapour pressure > 10 kPa [OC5].
Concentration of substance in product	Covers percentage substance in the product up to 100 % (unless stated differently) [G13].
Amounts used	<i>Not applicable</i>
Frequency and duration of use	Covers daily exposures up to 8 hours (unless stated differently) [G2]
Human factors not influenced by risk management	<i>Not applicable</i>
Other Operational Conditions affecting worker exposure	Assumes use at not > 20oC above ambient [G15]; Assumes a good basic standard of occupational hygiene is implemented [G1].
Exposure Scenarios	Risk Management Measures {phrases between brackets provide additional, non-mandatory risk management advice}.
Drum/batch transfers [CS8].	Use drum pumps or carefully pour from container [E64]. Avoid carrying out activities involving exposure for more than 1 hour [OC27]. {Wear suitable gloves tested to EN374 [PPE15]}.
Bulk transfers [CS14].	Use drum pumps [E53]. Avoid carrying out activities involving exposure for more than 1 hour [OC27]. {Wear suitable gloves tested to EN374 [PPE15]}.
General exposures (closed systems) [CS15].	No specific measures identified [EI18]. {Wear suitable gloves tested to EN374 [PPE15]}.
General exposures (closed systems) [CS15]. With occasional controlled exposure [CS137]	Provide extract ventilation to points where emissions occur [E54]. {Wear suitable gloves tested to EN374 [PPE15]}.
General exposures (open systems) [CS16]. (closed systems) [CS107]Batch process [CS55].	No specific measures identified [EI18]. {Wear suitable gloves tested to EN374 [PPE15]}.
Use as a fuel [GEST12_I](closed systems) [CS107]	No specific measures identified [EI18]. {Wear suitable gloves tested to EN374 [PPE15]}.
Equipment cleaning and maintenance [CS39].	Drain down system prior to equipment break-in or maintenance [E65]. Avoid carrying out activities involving exposure for more than 1 hour [OC27]. Retain drain downs in sealed storage pending disposal or for subsequent recycle [ENVT4]. {Wear suitable gloves tested to EN374 [PPE15]}.
Vessel and container cleaning [CS103]	Drain down system prior to equipment break-in or maintenance [E65]. Wear a respirator conforming to EN140 with Type A filter or better [PPE22]. Retain drain downs in sealed storage pending disposal or for subsequent recycle [ENVT4]. {Wear suitable gloves tested to EN374 [PPE15]}.
Storage [CS67]	No specific measures identified [EI18]. {Wear suitable gloves tested to EN374 [PPE15]}.
Section 2.2	Control of environmental exposure
	No exposure assessment presented for the environment. [G40]
Section 3	Exposure Estimate
3.1. Health	The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated [G21].

methanol, methyl alcohol

Product code: CH3OH

Safety Data Sheet

Compliant with Regulation (EU) no. 830/2015

Date of revision of the SDS: 01/09/2016

Version of the SDS: 2.0

Section 4	Guidance to check compliance with the Exposure Scenario
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 [G22].
	Where other Risk Management Measures/Operational Conditions are adopted, then users should ensure that risks are managed to at least equivalent levels [G23].

6. Use of Methanol in cleaners - Industrial

Section 1	Exposure Scenario Title
Title	Use of Methanol in cleaners - Industrial
Use Descriptors	Use sector: Industrial (SU3) Process Categories: PROC1, PROC2, PROC3, PROC4, PROC7, PROC8a, PROC8b, PROC10, PROC13 Environmental Release Categories: ERC4
Processes, tasks, activities covered	Covers the use as a component of cleaning products including transfer from storage, pouring/unloading from drums or containers. Exposures during mixing/diluting in the preparatory phase and cleaning activities (including spraying, brushing, dipping, wiping, automated and by hand), related equipment cleaning and maintenance.
Section 2	Operational conditions and risk management measures
Section 2.1	Control of worker exposure
Product characteristics	
Physical form of product	Liquid, vapour pressure > 10 kPa [OC5].
Concentration of substance in product	Covers percentage substance in the product up to 100 % (unless stated differently) [G13].
Amounts used	Not applicable
Frequency and duration of use	Covers daily exposures up to 8 hours (unless stated differently) [G2]
Human factors not influenced by risk management	Not applicable
Other Operational Conditions affecting worker exposure	Assumes use at not > 20oC above ambient [G15]; Assumes a good basic standard of occupational hygiene is implemented [G1].
Exposure Scenarios	Risk Management Measures {phrases between brackets provide additional, non-mandatory risk management advice}.
Bulk transfers [CS14].	Ensure material transfers are under containment or extract ventilation [E66].
Automated process with (semi) closed systems [CS93]. Use in contained systems [CS38].	Ensure material transfers are under containment or extract ventilation [E66].
Automated process with (semi) closed systems [CS93]. Use in contained systems [CS38].	Ensure material transfers are under containment or extract ventilation [E66].
Application of cleaning products in closed systems [CS101] Use in contained systems [CS38].	Ensure material transfers are under containment or extract ventilation [E66].
Filling / preparation of equipment from drums or containers. [CS45]. Dedicated facility [CS81]	Ensure material transfers are under containment or extract ventilation [E66].
Use in contained batch processes [CS37]. Treatment by heating [OC129].	Provide the operation with a properly sited receiving hood [E71].
Degreasing small objects in cleaning station [CS41].	Provide the operation with a properly sited receiving hood [E71].
Cleaning with low-pressure washers [CS42].	Provide the operation with a properly sited receiving hood [E71].
Cleaning with high pressure washers [CS44].	Carry out in a vented booth or extracted enclosure [E57]. Stay upwind/keep distance from source [EI22]. Clean equipment and the work area every day [C&H3]. Ensure control measures are regularly inspected and maintained [E6].
Cleaning [CS47]. Manual [CS34]. Surfaces [CS48]. No spraying [CS60].	Provide the operation with a properly sited receiving hood [E71].
Equipment cleaning and maintenance [CS39].	Ensure material transfers are under containment or extract ventilation [E66].

methanol, methyl alcohol

Product code: CH3OH

Safety Data Sheet

Compliant with Regulation (EU) no. 830/2015

Date of revision of the SDS: 01/09/2016

Version of the SDS: 2.0

Storage [CS67]Product sampling [CS137]	Ensure material transfers are under containment or extract ventilation [E66].
Section 2.2	Control of environmental exposure
	No exposure assessment presented for the environment. [G40]
Section 3 TBD	Exposure Estimate
3.1. Health	The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated [G21]
Section 4 TBD	Guidance to check compliance with the Exposure Scenario
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 [G22].
	Where other Risk Management Measures/Operational Conditions are adopted, then users should ensure that risks are managed to at least equivalent levels [G23].

7. Use of Methanol in cleaners - Professional

Section 1	Exposure Scenario Title
Title	Use of Methanol in cleaners - Professional
Use Descriptors	Use sector: Professional (SU22) Process Categories: PROC1, PROC2, PROC3, PROC4, PROC8a, PROC8b, PROC10, PROC11, PROC13 Environmental Release Categories: ERC 8A, ERC 8D
Processes, tasks, activities covered	Covers the use as a component of cleaning products including pouring/unloading from drums or containers; and exposures during mixing/diluting in the preparatory phase and cleaning activities (including spraying, brushing, dipping, wiping automated and by hand).
Section 2	Operational conditions and risk management measures
Section 2.1	Control of worker exposure
Product characteristics	
Physical form of product	Liquid, vapour pressure > 10 kPa [OC5].
Concentration of substance in product	Covers percentage substance in the product up to 100 % (unless stated differently) [G13].
Amounts used	<i>Not applicable</i>
Frequency and duration of use	Covers daily exposures up to 8 hours (unless stated differently) [G2]
Human factors not influenced by risk management	<i>Not applicable</i>
Other Operational Conditions affecting worker exposure	Assumes use at not > 20°C above ambient [G15]; Assumes a good basic standard of occupational hygiene is implemented [G1].
Exposure Scenarios	Risk Management Measures {phrases between brackets provide additional, non-mandatory risk management advice}.
Filling / preparation of equipment from drums or containers. [CS45]. Dedicated facility [CS81]	Limit the substance content in the product to 5 % [OC17] or: Ensure material transfers are under containment or extract ventilation [E66].
Automated process with (semi) closed systems [CS93]. Use in contained systems [CS38].	Provide the operation with a properly sited receiving hood [E71].
Automated process with (semi) closed systems [CS93]. Use in contained systems [CS38]. Drum/batch transfers [CS8].	Provide the operation with a properly sited receiving hood [E71].
Semi Automated process. (e.g.: Semi automatic application of floor care and maintenance products) [CS76]	Provide the operation with a properly sited receiving hood [E71]. Avoid carrying out activities involving exposure for more than 4 hours [OC28]
Filling / preparation of equipment from drums or containers. [CS45]. Non-dedicated facility [CS82].	Limit the substance content in the product to 5 % [OC17] or: Ensure material transfers are under containment or extract ventilation [E66].
Dipping, immersion and pouring [CS4]. Manual [CS34]. Cleaning [CS47]. Surfaces [CS48].	Provide the operation with a properly sited receiving hood [E71].
Cleaning with low-pressure washers [CS42]. Rolling, Brushing [CS51]. No spraying [CS60].	Limit the substance content in the product to 5 % [OC17]
Cleaning with high pressure washers [CS44]. Spraying [CS10].	Limit the substance content in the product to 5 % [OC17]. Avoid carrying out activities involving exposure for more than 4 hours [OC28]. Use long handled tools where possible [E50]. Wear chemically resistant gloves (tested to EN374) in combination with specific activity training. [PPE17]

methanol, methyl alcohol

Product code: CH3OH

Safety Data Sheet

Compliant with Regulation (EU) no. 830/2015

Date of revision of the SDS: 01/09/2016

Version of the SDS: 2.0

Spraying [CS10]. Manual [CS34]. Surfaces [CS48]. Cleaning [CS47].	Limit the substance content in the product to 5 % [OC17] or: Provide the operation with a properly sited receiving hood [E71].
Ad hoc manual application via trigger sprays, dipping, etc. [CS27]. Rolling, Brushing [CS51].	Limit the substance content in the product to 5 % [OC17] or: Provide the operation with a properly sited receiving hood [E71].
Ad hoc manual application via trigger sprays, dipping, etc. [CS27]. Rolling, Brushing [CS51].	Limit the substance content in the product to 5 % [OC17]
Application of cleaning products in closed systems [CS101]	Ensure material transfers are under containment or extract ventilation [E66]. Avoid carrying out activities involving exposure for more than 4 hours [OC28]
Cleaning of medical devices [CS74]	Provide the operation with a properly sited receiving hood [E71]. Avoid carrying out activities involving exposure for more than 4 hours [OC28]
Equipment cleaning and maintenance [CS39].	Limit the substance content in the product to 5 % [OC17]
Storage [CS67] With occasional controlled exposure [CS137]	Ensure material transfers are under containment or extract ventilation [E66].
Section 2.2	Control of environmental exposure
	No exposure assessment presented for the environment. [G40]
Section 3	Exposure Estimate
3.1. Health	The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated [G21]
Section 4 TBD	Guidance to check compliance with the Exposure Scenario
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 [G22].
	Where other Risk Management Measures/Operational Conditions are adopted, then users should ensure that risks are managed to at least equivalent levels [G23].

8. Use of Methanol in the lab - Industrial

Section 1	Exposure Scenario Title
Title	Use of Methanol in the lab - Industrial
Use Descriptors	Use sector: Industrial (SU3, SU10)
	Process Categories: PROC10, PROC15
	Environmental Release Categories: ERC 4
Processes, tasks, activities covered	Use of small quantities within laboratory settings, including material transfers and equipment cleaning.
Section 2	Operational conditions and risk management measures
Section 2.1	Control of worker exposure
Product characteristics	
Physical form of product	Liquid, vapour pressure > 10 kPa [OC5].
Concentration of substance in product	Covers percentage substance in the product up to 100 % (unless stated differently) [G13].
Amounts used	Not applicable
Frequency and duration of use	Covers daily exposures up to 8 hours (unless stated differently) [G2]
Human factors not influenced by risk management	Not applicable
Other Operational Conditions affecting worker exposure	Assumes use at not > 20oC above ambient [G15]; Assumes a good basic standard of occupational hygiene is implemented [G1].
Exposure Scenarios	Risk Management Measures {phrases between brackets provide additional, non-mandatory risk management advice}.
Laboratory activities [CS36]. Small scale [CS61]. Handling small quantities (<1000ml) for more than 4 hours/day - inside fume cupboard.	Handle in a fume cupboard or under extract ventilation [E83].{Wear suitable gloves tested to EN374 [PPE15]}.
Cleaning [CS47]. Rolling, Brushing [CS51]. Vessel and container cleaning [CS103]	Handle in a fume cupboard or under extract ventilation [E83].{Carefully pour from containers [E62]}. {Retain drain downs in sealed storage pending disposal or for subsequent recycle [ENVT4]}.{Wear suitable gloves tested to EN374 [PPE15]}.
Section 2.2	Control of environmental exposure
	No exposure assessment presented for the environment. [G40]
Section 3	Exposure Estimate
3.1. Health	The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated [G21].
Section 4	Guidance to check compliance with the Exposure Scenario
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 [G22].
	Where other Risk Management Measures/Operational Conditions are adopted, then users should ensure that risks are managed to at least equivalent levels [G23].

9. Use of Methanol in the lab - Professional

Section 1	Exposure Scenario Title
Title	Use of Methanol in the lab - Professional
Use Descriptors	Use sector: Professional (SU22)
	Process Categories: PROC10, PROC15
	Environmental Release Categories: ERC 8A
Processes, tasks, activities covered	Use of small quantities within laboratory settings, including material transfers and equipment cleaning.
Section 2	Operational conditions and risk management measures
Section 2.1	Control of worker exposure
Product characteristics	
Physical form of product	Liquid, vapour pressure > 10 kPa [OC5].
Concentration of substance in product	Covers percentage substance in the product up to 100 % (unless stated differently) [G13].
Amounts used	Not applicable
Frequency and duration of use	Covers daily exposures up to 8 hours (unless stated differently) [G2]
Human factors not influenced by risk management	Not applicable
Other Operational Conditions affecting worker exposure	Assumes use at not > 20°C above ambient [G15]; Assumes a good basic standard of occupational hygiene is implemented [G1].
Exposure Scenarios	Risk Management Measures {phrases between brackets provide additional, non-mandatory risk management advice}.
Laboratory activities [CS36]. Small scale [CS61]. Fume-cupboard Activity [CS139].	Handle in a fume cupboard or under extract ventilation [E83].{Wear suitable gloves tested to EN374 [PPE15]}.
Cleaning [CS47]. Rolling, Brushing [CS51]. Vessel and container cleaning [CS103]	Handle in a fume cupboard or under extract ventilation [E83].{Carefully pour from containers [E62]}. {Retain drain downs in sealed storage pending disposal or for subsequent recycle [ENVT4]}.{Wear suitable gloves tested to EN374 [PPE15]}.
Section 2.2	Control of environmental exposure
	No exposure assessment presented for the environment. [G40]
Section 3	Exposure Estimate
3.1. Health	The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated [G21]
Section 4	Guidance to check compliance with the Exposure Scenario
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 [G22].
	Where other Risk Management Measures/Operational Conditions are adopted, then users should ensure that risks are managed to at least equivalent levels [G23].

10. Use of Methanol for water treatment - Industrial

Section 1	Exposure Scenario Title
Title	Use of Methanol in water treatment applications - Industrial
Use Descriptors	Use sector: Industrial (SU10)
	Process Categories: PROC1, PROC2, PROC3, PROC4, PROC8a, PROC8b, PROC13
	Environmental Release Categories: ERC4, ERC6B
Processes, tasks, activities covered	Covers the use of the substance for the treatment of water at industrial facilities in open and closed systems.
Section 2	Operational conditions and risk management measures
Section 2.1	Control of worker exposure
Product characteristics	
Physical form of product	Liquid, vapour pressure > 10 kPa [OC5].
Concentration of substance in product	Covers percentage substance in the product up to 100 % (unless stated differently) [G13].
Amounts used	Not applicable
Frequency and duration of use	Covers daily exposures up to 8 hours (unless stated differently) [G2]
Not applicable	Not applicable
Other Operational Conditions affecting worker exposure	Assumes use at not > 20oC above ambient [G15]; Assumes a good basic standard of occupational hygiene is implemented [G1].
Exposure Scenarios	Risk Management Measures {phrases between brackets provide additional, non-mandatory risk management advice}.
Bulk transfers [CS14]. With occasional controlled exposure [CS137]	Provide extract ventilation to points where emissions occur [E54]. {Transfer via enclosed lines [E52]}. {Clear transfer lines prior to de-coupling [E39]}. {Wear suitable gloves tested to EN374 [PPE15]}.
Drum/batch transfers [CS8]. Dedicated facility [CS81].	Avoid spillage when withdrawing pump [C&H16]. {Wear suitable gloves tested to EN374 [PPE15]}.
General exposures (closed systems) [CS15]. Batch process [CS55].	No specific measures identified [EI18]. {Wear suitable gloves tested to EN374 [PPE15]}.
General exposures (open systems) [CS16].	No specific measures identified [EI18]. {Wear suitable gloves tested to EN374 [PPE15]}.
Pouring from small containers [CS9]. Treatment by dipping and pouring [CS35].	Provide a good standard of controlled ventilation (10 to 15 air changes per hour) [E40]. {Wear suitable gloves tested to EN374 [PPE15]}.
Equipment maintenance [CS5].	Drain or remove substance from equipment prior to break-in or maintenance [E81]. Retain drain downs in sealed storage pending disposal or for subsequent recycle [ENVT4]. {Carefully pour from containers [E62]}. {Wear suitable gloves tested to EN374 [PPE15]}.
Storage [CS67]	Store substance within a closed system [E84].{Wear suitable gloves tested to EN374 [PPE15]}.
Section 2.2	Control of environmental exposure
	No exposure assessment presented for the environment. [G40]
Section 3	Exposure Estimate
3.1. Health	The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated [G21].
Section 4	Guidance to check compliance with the Exposure Scenario
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 [G22].
	Where other Risk Management Measures/Operational Conditions are adopted, then users should ensure that risks are managed to at least equivalent levels [G23].

11. Use of Methanol in oil field drilling and production operations

Section 1	Exposure Scenario Title
Title	Use of Methanol in oil field drilling and production operations
Use Descriptors	Use sector: Industrial (SU3)
	Process Categories: PROC1, PROC2, PROC3, PROC4, PROC5, PROC8a, PROC8b
	Environmental Release Categories: ERC4
Processes, tasks, activities covered	Oil field well drilling and production operations (including drilling muds and well cleaning) including material transfers, on-site formulation, wellhead operations, shaker room activities and related maintenance.
Section 2	Operational conditions and risk management measures
Section 2.1	Control of worker exposure
Product characteristics	
Physical form of product	Liquid, vapour pressure > 10 kPa [OC5].
Concentration of substance in product	Covers percentage substance in the product up to 100 % (unless stated differently) [G13].
Amounts used	Not applicable
Frequency and duration of use	Covers daily exposures up to 8 hours (unless stated differently) [G2]
Human factors not influenced by risk management	Not applicable
Other Operational Conditions affecting worker exposure	Assumes use at not > 20oC above ambient [G15]; Assumes a good basic standard of occupational hygiene is implemented [G1].
Exposure Scenarios	Risk Management Measures
Bulk transfers [CS14]. Mixtures containing up to 5% of methanol	Limit the substance content in the product to 5 % [OC17]. {Wear chemically resistant gloves (tested to EN374) in combination with 'basic' employee training [PPE16]}.
Filling / preparation of equipment from drums or containers. [CS45]. Mixtures containing up to 5% of methanol	Limit the substance content in the product to 5 % [OC17]. {Wear chemically resistant gloves (tested to EN374) in combination with 'basic' employee training [PPE16]}.
Drill floor operations [CS116]. General exposures (closed systems) [CS15]. Outdoor [OC9].	No other specific measures identified [EI20]. {Wear chemically resistant gloves (tested to EN374) in combination with 'basic' employee training [PPE16]}.
Drill floor operations [CS116]. General exposures (open systems) [CS16]. Outdoor [OC9].	Ensure operation is undertaken outdoors [E69]. {Wear chemically resistant gloves (tested to EN374) in combination with 'basic' employee training [PPE16]}.
Operation of solids filtering equipment [CS117].	Ensure material transfers are under containment or extract ventilation [E66]. Avoid carrying out activities involving exposure for more than 4 hours [OC28]. {Wear chemically resistant gloves (tested to EN374) in combination with 'basic' employee training [PPE16]}.
Treatment and disposal of filtered solids [CS121].	Ensure material transfers are under containment or extract ventilation [E66]. {Wear chemically resistant gloves (tested to EN374) in combination with 'basic' employee training [PPE16]}.
Process sampling [CS2].	No specific measures identified [EI18]. {Wear chemically resistant gloves (tested to EN374) in combination with 'basic' employee training [PPE16]}.
General exposures (closed systems) [CS15].	No specific measures identified [EI18]. {Wear chemically resistant gloves (tested to EN374) in combination with 'basic' employee training [PPE16]}.
Pouring from small containers [CS9]. Mixtures containing up to 5% of methanol	Provide a good standard of general ventilation. Controlled ventilation means air is supplied or removed by a powered fan. [E1]. {Wear chemically resistant gloves (tested to EN374) in combination with 'basic' employee training [PPE16]}.
Mixing operations (open systems) [CS30]. Mixtures containing up to 5% of methanol	Limit the substance content in the product to 5 % [OC17]. No other specific measures identified [EI20]. {Wear chemically resistant gloves (tested to EN374) in combination with 'basic' employee training [PPE16]}.
Equipment cleaning and maintenance [CS39].	Limit the substance content in the product to 5 % [OC17]. Provide a good standard of general ventilation. Controlled ventilation means air is supplied or removed by a powered fan. [E1]. {Wear chemically resistant gloves (tested to EN374) in combination with 'basic' employee training [PPE16]}.
Batch process [CS55].	No specific measures identified [EI18]. {Wear chemically resistant gloves (tested to EN374) in combination with 'basic' employee training [PPE16]}.
Batch process [CS55]. With occasional controlled exposure [CS137]	Provide extract ventilation to points where emissions occur [E54]. {Wear chemically resistant gloves (tested to EN374). Combine with 'basic' employee training [PPE16]}.
Section 2.2	Control of environmental exposure
	No exposure assessment presented for the environment. [G40]
Section 3	Exposure Estimate
3.1. Health	The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated [G21]

methanol, methyl alcohol

Product code: CH3OH

Safety Data Sheet

Compliant with Regulation (EU) no. 830/2015

Date of revision of the SDS: 01/09/2016

Version of the SDS: 2.0

Section 4	Guidance to check compliance with the Exposure Scenario
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 [G22].
	Where other Risk Management Measures/Operational Conditions are adopted, then users should ensure that risks are managed to at least equivalent levels [G23].

12. Consumer use of Methanol in cleaning agents (e.g. windshield cleaner) and de-icers (liquid non-spray products)

General remarks

For the use of cleaning agents (or de-icers) containing methanol the use of ready-to-use products for which no dilution and mixing steps are necessary was assumed. Furthermore, it is assumed that cleaning agents containing methanol are only sold within cleaners intended for cleaning/de-icing small surfaces (e.g. windshields) and thus small packaging sizes are assumed.

Section 1			
Title	Consumer use of Methanol in cleaning agents (e.g. windshield cleaner) and de-icers (liquid non-spray products)		
Use Descriptors	ERC 8a and 8d; PC 4 and 35, SU 21		
Processes, tasks activities covered	Application of cleaning agents and de-icers as liquid non-spray products.		
Assessment Method	Tool used: ConsExpo (v4.1) Default exposure scenario with modifications ¹ : Cleaning and washing agents/All-purpose cleaners/Liquid cleaner/Application (Inhalation evaporation model: mode of release – evaporation; Dermal direct product contact: dermal loading – instant application)		
2. Operational conditions and risk management measures			
2.1 Control of consumers exposure			
Frequency and duration of use			
Frequency of exposure	104	l/year	ConsExpo default value
Duration of exposure	240	mins	ConsExpo default value
Duration of application	20	mins	ConsExpo default value
Product characteristics (including package design affecting exposure)			
Physical state of product	Liquid		
Concentration of substance in product	Max. 2.5	%	
Vapour pressure of substance	169	hPa	
Mol weight of matrix	18	g/mol	ConsExpo default value
Mass transfer rate	0.413	m/min	Approximation according to Thibodauxs´s method
Amounts used			
Applied amount	100	g/event	Corresponding applied amount dermal is assumed to be 5 g/event ¹
Human factors not influenced by risk management			
Exposed body parts dermal	1900	cm²	Refers to both hands and forearms; ConsExpo default value
Inhalation rate	24.1	l/min	Light exercise; ConsExpo default value
Other given operational conditions affecting consumers exposure			
Room volume	58	m³	ConsExpo default value
Ventilation rate	0.5	1/hr	ConsExpo default value
Release area	5	m²	
Conditions and measures related to information and behavioural advice to consumers			
			None

methanol, methyl alcohol

Product code: CH3OH

Safety Data Sheet

Compliant with Regulation (EU) no. 830/2015

Date of revision of the SDS: 01/09/2016

Version of the SDS: 2.0

Conditions and measures related to personal protection and hygiene			
			None
Route of exposure	Concentrations		Comment
	Value	Unit	
Long-term exposure, systemic, dermal	1.92	mg/kg bw/d	
Long-term exposure, systemic, inhalative	3.05	mg/m ³	
Long-term exposure, systemic, oral	Not applicable	mg/kg bw/d	This route of exposure is regarded to be not relevant.
Short-term exposure, systemic, dermal	1.92	mg/kg bw/d	
Short-term exposure, systemic, inhalative	18.30	mg/m ³	
Short-term exposure, systemic, oral	Not applicable	mg/kg bw/d	This route of exposure is regarded to be not relevant.

* The ConsExpo default database was modified regarding the following parameters:

- Inhalation model: product amount: 100g (instead of 400g)
release area: 5m² (instead of 10m²)
- Dermal model: product amount: 5g (instead of 19g)

According to the Cleaning products Fact Sheet it is assumed that 1% of the product gives dermal exposure unless stated otherwise. The ConsExpo defaults give a dermal exposure of 19g for an applied amount of 400g of the product which corresponds to approx. 5%. Thus, for a product amount of 100g, 5g of the product are assumed to give dermal exposure.

13. Consumer use of Methanol in cleaning agents (e.g. windshield cleaner) and de-icers (liquid spray products)

Section 1			
Title	Consumer use of Methanol in cleaning agents (e.g. windshield cleaner) and de-icers (liquid spray products)		
Use Descriptors	ERC 8a and 8d, PC 4 and 35, SU 21		
Processes, tasks activities covered	Application of cleaning agents and de-icers as liquid spray products		
Assessment Method	Tool used: ConsExpo (v4.1) Default exposure scenario: Cleaning and washing agents/All-purpose cleaners/Spray cleaner/Application spraying and application cleaning		
2. Operational conditions and risk management measures			
2.1 Control of consumers exposure			
Frequency and duration of use			
Frequency of exposure	365	1/year	ConsExpo default value
Duration of exposure	60	mins	ConsExpo default value
Duration of application	10	mins	ConsExpo default value
Spray duration	0.41	mins	Only relevant within the “Application spraying” model; ConsExpo default value
Product characteristics (including package design affecting exposure)			
Physical state of product	Liquid		
Concentration of substance in product	Max. 5.0	%	
Vapour pressure of substance	169	hPa	
Mol weight of matrix	22	g/mol	Only relevant within the “Application cleaning” model; ConsExpo default value
Mass transfer rate	0.413	m/min	Approximation according to Thibodauxs´s metthod; Only relevant within the “Application cleaning” model
Amounts used			
Applied amount	16.2	g/event	Corresponding applied amount dermal is assumed to be 0.16 g/event; ConsExpo default value
Human factors not influenced by risk management			
Exposed body parts dermal; Application spraying	960	cm²	Refers to both hands; ConsExpo default value
Exposed body parts dermal; Application Cleaning	215	cm²	Refers to palm of one hand; ConsExpo default value
Inhalation rate	24.1	l/min	Light exercise; ConsExpo default value
Other given operational conditions affecting consumers exposure			
Room volume	15	m³	ConsExpo default value
Room height	2.5	m	Only relevant within the “Application spraying” model; ConsExpo default value
Ventilation rate	2.5	1/hr	ConsExpo default value

methanol, methyl alcohol

Product code: CH3OH

Safety Data Sheet

Compliant with Regulation (EU) no. 830/2015

Date of revision of the SDS: 01/09/2016

Version of the SDS: 2.0

Release area	1.71	m ²	Only relevant within the "Application cleaning" model; ConsExpo default value
Conditions and measures related to information and behavioural advice to consumers			
Spraying away from exposed person			
Conditions and measures related to personal protection and hygiene			
			None
Route of exposure	Concentrations		Comment
	Value	Unit	
Long-term exposure, systemic, dermal (Application spraying)	0.0145	mg/kg bw/d	
Long-term exposure, systemic, dermal (Application cleaning)	0.0123		
Long-term exposure, systemic, dermal (Application spraying and cleaning)	0.0268		
Long-term exposure, systemic, inhalative (Application spraying)	0.000011	mg/m ³	
Long-term exposure, systemic, inhalative (Application cleaning)	0.822		
Long-term exposure, systemic, inhalative (Application spraying and cleaning)	0.822		
Long-term exposure, systemic, oral (Application spraying)	0.000576	mg/kg bw/d	
Long-term exposure, systemic, oral (Application cleaning)	NA		
Long-term exposure, systemic, oral (Application spraying and cleaning)	0.000576		
Short-term exposure, systemic, dermal (Application spraying)	0.0145	mg/kg bw/d	
Short-term exposure, systemic, dermal (Application cleaning)	0.0123		
Short-term exposure, systemic, dermal (Application spraying and cleaning)	0.0268		
Short-term exposure, systemic, inhalative (Application spraying)	0.000263	mg/m ³	
Short-term exposure, systemic, inhalative (Application cleaning)	19.7		
Short-term exposure, systemic, inhalative (Application spraying and cleaning)	19.7		
Short-term exposure, systemic, oral (Application spraying)	0.000576	mg/kg bw/d	

methanol, methyl alcohol

Product code: CH3OH

Safety Data Sheet

Compliant with Regulation (EU) no. 830/2015

Date of revision of the SDS: 01/09/2016

Version of the SDS: 2.0

Short-term exposure, systemic, oral (Application cleaning)	NA		
Short-term exposure, systemic, oral (Application spraying and cleaning)	0.000576		

NA = Not applicable

14. Consumer use of Methanol as a fuel indoors (Domestic/hobby use e.g. for model engines, fondue sets, etc.)

For the consumer use of methanol as a fuel/within fuels it is assumed that the packaging has been designed to prevent unintended skin contact. E.g. Filling/loading has to be possible without using a funnel and without spillage.

Section 1			
Free short title	Consumer use of Methanol as a fuel indoors (Domestic/hobby use e.g. for model engines, fondue sets, etc.)		
Systematic title based on use descriptor	PC 13, SU 21		
Processes, tasks activities covered	-		
Assessment Method	Tool used: ConsExpo (v4.1) (Inhalation model: Exposure to vapour – evaporation; Dermal model: Direct dermal contact with product: instant application; Dermal uptake model: Fraction)		
2. Operational conditions and risk management measures			
2.1 Control of consumers exposure			
Frequency and duration of use			
Frequency of exposure	2	1/week	
Duration of exposure	10	mins	
Duration of application	10	mins	
Product characteristics (including package design affecting exposure)			
Physical state of product	Liquid		
Concentration of substance in product	80	%	According to the “Household products database” of the U.S. Department of Health and Human Services
Vapour pressure of substance	169	hPa	
Mol weight of matrix	100	g/mol	Estimated on the basis of available commercial products (ingredients: e.g. nitroethane, nitromethane, castor oil)
Mass transfer rate	0.413	m/min	Approximation according to Thibodaux’s method
Release area	2	cm²	
Amounts used			
Applied amount (inhalative)	800	g/event	
Human factors not influenced by risk management			
Inhalation rate	34.7	m³/day	Light exercise
Other given operational conditions affecting consumers exposure			
Room volume	20	m³	
Ventilation rate	0.5	1/hr	
Release area (inhalation)	2	cm²	
Conditions and measures related to information and behavioural advice to consumers			
None			
Conditions and measures related to personal protection and hygiene			
None			

methanol, methyl alcohol

Product code: CH3OH

Safety Data Sheet

Compliant with Regulation (EU) no. 830/2015

Date of revision of the SDS: 01/09/2016

Version of the SDS: 2.0

Additional good practice advice

Avoid contact with skin.
Use suitable chemical resistant gloves.
In case of skin contact wash exposed skin areas immediately.
Keep container tightly closed.

Route of exposure	Concentrations		Comment
	Value	Unit	
Long-term exposure, systemic, dermal	NA		Assuming intended use of the product significant skin contact only occurs in case of accidents. Thus the dermal route of exposure is regarded to be not relevant.
Long-term exposure, systemic, inhalative	0.287	mg/m ³	
Long-term exposure, systemic, oral	NA	mg/kg bw/d	This route of exposure is regarded to be not relevant.
Short-term exposure, systemic, dermal	NA		Assuming intended use of the product significant skin contact only occurs in case of accidents. Thus the dermal route of exposure is regarded to be not relevant.
Short-term exposure, systemic, inhalative	41.3	mg/m ³	
Short-term exposure, systemic, oral	NA	mg/kg bw/d	This route of exposure is regarded to be not relevant.

NA = Not applicable

15. Consumer use of Methanol as a fuel outdoors

General remarks

Although the consumer use of methanol as/in fuels is assessed within this exposure scenario, PROC 16 of ECETOC TRA (v.2.0) was used to assess this activity for workers. PROC 16 is considered to cover the activity of filling up vehicles in an appropriate manner, while ConsExpo is deemed to be unsuitable.

Section 1			
Free short title	Consumer use of Methanol as a fuel outdoors		
Systematic title based on use descriptor	PROC 16, SU 21		
Processes, tasks activities covered	Filling up cars and other vehicles at petrol stations		
Assessment Method	Tool used: ECETOC TRA workers (v2.0) modified ¹		
2. Operational conditions and risk management measures			
2.4 Control of workers exposure for PROC 16			
Frequency and duration of use			
Duration of exposure	< 15 mins	hours/day	
Frequency of exposure	≤ 240	days/year	
Product characteristics (including package design affecting exposure)			
Physical state of product	Liquid		
Concentration of substance in product	100	%	
Vapour pressure of substance	169.27	hPa	
Amounts used			
			Not relevant in ECETOC TRA
Human factors not influenced by risk management			
Exposed body parts dermal	Palm of one hand (240cm ²)		
Other given operational conditions affecting workers exposure			
Domain	Professional		
Inside/outside	Outside		
Technical conditions and measures at process level (source) to prevent release			
Conditions and measures to control dispersion from source towards the worker			
Organisational measures to prevent /limit releases, dispersion and exposure			
			Not relevant in ECETOC TRA
Conditions and measures related to personal protection, hygiene and health evaluation			
Respiratory protection required	No		

methanol, methyl alcohol

Safety Data Sheet
Compliant with Regulation (EU) no. 830/2015

Product code: CH3OH
Date of revision of the SDS: 01/09/2016
Version of the SDS: 2.0

Route of exposure	Concentrations		Comment
	Value	Unit	
Long-term exposure, systemic, dermal	0.34	mg/kg bw/d	
Long-term exposure, systemic, inhalative	4.67	mg/m³	
Short-term exposure, systemic, dermal	0.34	mg/kg bw/d	
Short-term exposure, systemic, inhalative	9.34	mg/m3	