	SAFETY DATA SHEET	Page : 1 / 58
		Revision nr : 1.0
	Methanol	Issue date : 21/09/2018
		Supersedes :

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

1.1. Product identifier


Product form	: Substance
Trade name/designation	: Methanol
Chemical name	: Methanol
EC Index	: 603-001-00-X
EC-No.	: 200-659-6
CAS-No.	: 67-56-1
REACH registration No	: 01-2119433307-44-0210
Formula	: CH4O

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

1.2.1. Relevant identified uses

Industrial/Professional use spec	: Industrial Professional uses
Use of the substance/mixture	: Reagent Solvent Fuel feedstock

Title	Use descriptors
Manufacture of substance (ES Ref.: 01)	SU3, SU8, SU9, PROC1, PROC2, PROC3, PROC4, PROC8a, PROC8b, PROC15, ERC1, ERC4, ERC6a
Distribution of substance (ES Ref.: 02)	SU3, SU8, SU9, PROC1, PROC2, PROC3, PROC4, PROC8a, PROC8b, PROC9, ERC1, ERC2
Formulation & (re)packing of substances and mixtures (ES Ref.: 03)	SU3, SU10, PROC1, PROC2, PROC3, PROC4, PROC8a, PROC8b, PROC9, PROC15, ERC2
Use as a fuel (ES Ref.: 04)	SU3, PROC1, PROC2, PROC3, PROC8a, PROC8b, PROC16, PROC19, ERC8b
Use in cleaning agents (ES Ref.: 06)	SU3, PROC1, PROC2, PROC3, PROC4, PROC7, PROC8a, PROC8b, PROC10, PROC13, ERC4
Use as laboratory reagent (ES Ref.: 08)	SU3, PROC10, PROC15, ERC4
Industrial use as wastewater treatment chemical (ES Ref.: 10)	SU3, PROC2, ERC9b
Use as a fuel (ES Ref.: 05)	SU22, PROC1, PROC2, PROC3, PROC8a, PROC8b, PROC16, PROC19, ERC8b, ERC8e
Use in cleaning agents (ES Ref.: 07)	SU22, PROC1, PROC2, PROC3, PROC4, PROC8a, PROC8b, PROC10, PROC11, PROC13, ERC8a, ERC8d
Use as laboratory reagent (ES Ref.: 09)	SU22, PROC10, PROC15, ERC8a
Use in oil and gas field drilling and production operations (ES Ref.: 11)	SU22, PROC4, PROC5, PROC8a, PROC8b, ERC9b
Consumer use of cleaning agents and de-icers (liquid products) (ES Ref.: 12)	SU21, PC4, PC35, ERC8a, ERC8d
Consumer use of cleaning agents and de-icers (spray products) (ES Ref.: 13)	SU21, PC4, PC35, ERC8a, ERC8d
Consumer use of fuels indoors (Domestic/hobby use e.g in model engines, fuel cells, fondue sets) (ES Ref.: 14a)	SU21, PC13, ERC8b

	SAFETY DATA SHEET	Page : 3 / 58
		Revision nr : 1.0
	Methanol	Issue date : 21/09/2018
		Supersedes :

Precautionary statements (CLP) : H301+H311+H331 - Toxic if swallowed, in contact with skin or if inhaled
H370 - Causes damage to organs (central nervous system, optic nerve).
: P210 - Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.
P260 - Do not breathe vapours.
P280 - Wear eye protection, face protection, protective clothing, protective gloves.
P301+P310 - IF SWALLOWED: Immediately call a doctor, a POISON CENTER.
P308+P311 - IF exposed or concerned: Call a doctor, a POISON CENTER.
P403+P233 - Store in a well-ventilated place. Keep container tightly closed.

Listed in Annex VI : EC Index-No. : 603-001-00-X

2.3. Other hazards

Other hazards : Vapours can form explosive mixtures with air. Results of PBT and vPvB assessment : Not PBT, vPvB.

SECTION 3: Composition/information on ingredients

3.1. Substances

Substance name : Methanol
CAS-No. : 67-56-1
EC-No. : 200-659-6
EC Index : 603-001-00-X

Substance name	Product identifier	%	Classification according to Regulation (EC) No. 1272/2008 [CLP]
methanol	(CAS-No.) 67-56-1 (EC-No.) 200-659-6 (EC Index) 603-001-00-X (REACH-no) 01-2119433307-44-0210	100	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:

Substance name	Product identifier	Specific concentration limits
methanol	(CAS-No.) 67-56-1 (EC-No.) 200-659-6 (EC Index) 603-001-00-X (REACH-no) 01-2119433307-44-0210	(3 =<C < 10) STOT SE 2, H371 (C >= 10) STOT SE 1, H370

Full text of H-statements: see section 16

3.2. Mixtures

Not applicable


SECTION 4: First aid measures

4.1. Description of first aid measures

Additional advice : First aider: Pay attention to self-protection. Concerning personal protective equipment to use, see section 8. Never give anything by mouth to an unconscious person. In case of doubt or persistent symptoms, consult always a physician. Show this safety data sheet to the doctor in attendance.

Inhalation : Remove person to fresh air and keep comfortable for breathing. Give oxygen or artificial respiration if necessary. Get immediate medical advice/attention. Get medical advice/attention.

Skin contact : After contact with skin, take off immediately all contaminated clothing, and wash immediately with plenty of water and soap. Get medical advice/attention.

	SAFETY DATA SHEET	Page : 4 / 58
		Revision nr : 1.0
	Methanol	Issue date : 21/09/2018
		Supersedes :

Eyes contact : Rinse immediately carefully and thoroughly with eye-bath or water. Get medical advice/attention.

Ingestion : Rinse mouth thoroughly with water. Get immediate medical advice/attention.

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

Inhalation : Toxic if inhaled. The following symptoms may occur: Inhalation may cause irritation (cough, short breathing, difficulty in breathing). May cause drowsiness or dizziness.

Skin contact : Toxic in contact with skin. The following symptoms may occur: irritation (itching, redness, blistering), Dry skin. May be absorbed through the skin.

Eyes contact : The following symptoms may occur: redness, itching, tears.

Ingestion : Toxic if swallowed. The following symptoms may occur: May cause gastrointestinal irritation, nausea, vomiting and diarrhoea.

Chronic symptoms : May cause damage to organs (central nervous system, optic nerve).

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

Treat symptomatically.

SECTION 5: Firefighting measures

5.1. Extinguishing media

Suitable extinguishing media : carbon dioxide (CO₂), powder, alcohol-resistant foam, water spray.

Unsuitable extinguishing media : Strong water jet.

5.2. Special hazards arising from the substance or mixture

Specific hazards : Heating causes rise in pressure with risk of bursting. Highly flammable liquid and vapour. Vapours are heavier than air and may travel considerable distance to an ignition source and flash back to source of vapours. Can form explosive mixture with air.

Hazardous decomposition products in case of fire : Carbon oxides (CO, CO₂).

5.3. Advice for firefighters

Firefighting instructions : Evacuate area. Use water spray or fog for cooling exposed containers. Contain the extinguishing fluids by bunding. Prevent fire fighting water from entering the environment.

Protection during firefighting : Do not attempt to take action without suitable protective equipment. Self-contained breathing apparatus.

Other information : Do not allow run-off from fire-fighting to enter drains or water courses. Dispose of waste in accordance with environmental legislation.

SECTION 6: Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

6.1.1. For non-emergency personnel


For non-emergency personnel : Evacuate unnecessary personnel. Keep upwind. Provide adequate ventilation. Wear recommended personal protective equipment. Concerning personal protective equipment to use, see section 8. Do not breathe vapours. Avoid contact with skin, eyes and clothing. Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking. Ensure equipment is adequately earthed. Use explosion-proof equipment. Use only non-sparking tools.

6.1.2. For emergency responders

For emergency responders : Ensure procedures and training for emergency decontamination and disposal are in place. Concerning personal protective equipment to use, see section 8. Concerning disposal elimination after cleaning, see section 13.

6.2. Environmental precautions

Do not allow to enter into surface water or drains. Notify authorities if product enters sewers or public waters.

	SAFETY DATA SHEET	Page : 5 / 58
		Revision nr : 1.0
	Methanol	Issue date : 21/09/2018
		Supersedes :

6.3. Methods and material for containment and cleaning up

Methods for cleaning up : Stop leak if safe to do so. Dam up the liquid spill. Small quantities of liquid spill: take up in non-combustible absorbent material and shovel into container for disposal. Recover large spills by pumping (use an explosion proof or hand pump). Place in a suitable container for disposal in accordance with the waste regulations (see Section 13). This material and its container must be disposed of in a safe way, and as per local legislation. Cover the spilled liquid product with foam to slow down evaporation.

6.4. Reference to other sections

Concerning personal protective equipment to use, see section 8. Concerning disposal elimination after cleaning, see section 13.

SECTION 7: Handling and storage

7.1. Precautions for safe handling

Precautions for safe handling : Provide adequate ventilation. Use personal protective equipment as required. Concerning personal protective equipment to use, see section 8. Do not breathe vapours. Avoid contact with skin, eyes and clothing. Take any precaution to avoid mixing with Incompatible materials, Refer to Section 10 on Incompatible Materials. Ensure proper process control to avoid excess waste discharge (temperature, concentration, pH, time). Avoid release to the environment. Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking. Ground/bond container and receiving equipment. Use explosion-proof equipment. Use only non-sparking tools.

Hygiene measures : Keep good industrial hygiene. Wash hands and other exposed areas with mild soap and water before eating, drinking or smoking and when leaving work. Do not eat, drink or smoke when using this product. Keep away from food, drink and animal feedingstuffs. Remove contaminated clothes. Separate working clothes from town clothes. Launder separately. Wash contaminated clothing before reuse.

7.2. Conditions for safe storage, including any incompatibilities

Storage conditions : Store in a dry, cool and well-ventilated place. Do not store near or with any of the incompatible materials listed in section 10. Bund storage facilities to prevent soil and water pollution in the event of spillage. Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.

Packaging materials : Keep only in the original container.

7.3. Specific end use(s)

No data available.

SECTION 8: Exposure controls/personal protection

8.1. Control parameters

methanol (67-56-1)		
EU	IOELV TWA (mg/m ³)	260 mg/m ³
EU	IOELV TWA (ppm)	200 ppm
EU	Notes	Possibility of significant uptake through the skin
Austria	MAK (mg/m ³)	260 mg/m ³
Austria	MAK (ppm)	200 ppm
Austria	MAK Short time value (mg/m ³)	1040 mg/m ³
Austria	MAK Short time value (ppm)	800 ppm
Belgium	Limit value (mg/m ³)	266 mg/m ³
Belgium	Limit value (ppm)	200 ppm
Belgium	Short time value (mg/m ³)	333 mg/m ³
Belgium	Short time value	250 ppm
Bulgaria	OEL TWA (mg/m ³)	260 mg/m ³
Bulgaria	OEL TWA (ppm)	200 ppm
Croatia	GVI (granična vrijednost izloženosti) (mg/m ³)	260 mg/m ³
Croatia	GVI (granična vrijednost izloženosti) (ppm)	200 ppm



SAFETY DATA SHEET

Page : 6 / 58

Revision nr : 1.0

Issue date : 21/09/2018

Methanol

Supersedes :

methanol (67-56-1)		
Cyprus	OEL TWA (mg/m ³)	260 mg/m ³
Cyprus	OEL TWA (ppm)	200 ppm
Czech Republic	Expoziční limity (PEL) (mg/m ³)	250 mg/m ³
Denmark	Grænseværdie (langvarig) (mg/m ³)	260 mg/m ³
Denmark	Grænseværdie (langvarig) (ppm)	200 ppm
Estonia	OEL TWA (mg/m ³)	260 mg/m ³
Estonia	OEL TWA (ppm)	200 ppm
Estonia	OEL STEL (mg/m ³)	350 mg/m ³
Estonia	OEL STEL (ppm)	250 ppm
Finland	HTP-arvo (8h) (mg/m ³)	270 mg/m ³
Finland	HTP-arvo (8h) (ppm)	200 ppm
Finland	HTP-arvo (15 min)	330 mg/m ³
Finland	HTP-arvo (15 min) (ppm)	250 ppm
France	VME (mg/m ³)	260 mg/m ³ (restrictive limit)
France	VME (ppm)	200 ppm (restrictive limit)
France	VLE (mg/m ³)	1300 mg/m ³
France	VLE (ppm)	1000 ppm
Germany	TRGS 900 Occupational exposure limit value (mg/m ³)	270 mg/m ³ (The risk of damage to the embryo or fetus can be excluded when AGW and BGW values are observed)
Germany	TRGS 900 Occupational exposure limit value (ppm)	200 ppm (The risk of damage to the embryo or fetus can be excluded when AGW and BGW values are observed)
Germany	TRGS 903 Biological limit value	30 mg/l Parameter: Methanol - Medium: urine - Sampling time: end of shift 30 mg/l Parameter: Methanol - Medium: urine - Sampling time: end of several shifts (for long-term exposures)
Gibraltar	8h mg/m ³	260 mg/m ³
Gibraltar	8h ppm	200 ppm
Greece	OEL TWA (mg/m ³)	260 mg/m ³
Greece	OEL TWA (ppm)	200 ppm
Greece	OEL STEL (mg/m ³)	325 mg/m ³
Greece	OEL STEL (ppm)	250 ppm
Hungary	AK-érték	260 mg/m ³
Ireland	OEL (8 hours ref) (mg/m ³)	260 mg/m ³
Ireland	OEL (8 hours ref) (ppm)	200 ppm
Ireland	OEL (15 min ref) (mg/m ³)	780 mg/m ³ (calculated)
Ireland	OEL (15 min ref) (ppm)	600 ppm (calculated)
Italy	OEL TWA (mg/m ³)	260 mg/m ³
Italy	OEL TWA (ppm)	200 ppm
Latvia	OEL TWA (mg/m ³)	260 mg/m ³
Latvia	OEL TWA (ppm)	200 ppm
Lithuania	IPRV (mg/m ³)	260 mg/m ³
Lithuania	IPRV (ppm)	200 ppm



SAFETY DATA SHEET

Page : 7 / 58


Revision nr : 1.0

Issue date : 21/09/2018

Methanol

Supersedes :

methanol (67-56-1)		
Luxembourg	OEL TWA (mg/m ³)	260 mg/m ³
Luxembourg	OEL TWA (ppm)	200 ppm
Malta	OEL TWA (mg/m ³)	260 mg/m ³
Malta	OEL TWA (ppm)	200 ppm
Netherlands	Grenswaarde TGG 8H (mg/m ³)	133 mg/m ³
Netherlands	Grenswaarde TGG 8H (ppm)	100 ppm
Poland	NDS (mg/m ³)	100 mg/m ³
Poland	NDSch (mg/m ³)	300 mg/m ³
Portugal	OEL TWA (mg/m ³)	260 mg/m ³ (indicative limit value)
Portugal	OEL TWA (ppm)	200 ppm (indicative limit value)
Portugal	OEL STEL (ppm)	250 ppm
Romania	OEL TWA (mg/m ³)	260 mg/m ³
Romania	OEL TWA (ppm)	200 ppm
Slovakia	NPHV (priemerná) (mg/m ³)	260 mg/m ³
Slovakia	NPHV (priemerná) (ppm)	200 ppm
Slovenia	OEL TWA (mg/m ³)	260 mg/m ³
Slovenia	OEL TWA (ppm)	200 ppm
Spain	VLA-ED (mg/m ³)	266 mg/m ³ (indicative limit value)
Spain	VLA-ED (ppm)	200 ppm (indicative limit value)
Sweden	nivågränsvärde (NVG) (mg/m ³)	250 mg/m ³
Sweden	nivågränsvärde (NVG) (ppm)	200 ppm
Sweden	kortidsvärde (KTV) (mg/m ³)	350 mg/m ³
Sweden	kortidsvärde (KTV) (ppm)	250 ppm
United Kingdom	WEL TWA (mg/m ³)	266 mg/m ³
United Kingdom	WEL TWA (ppm)	200 ppm
United Kingdom	WEL STEL (mg/m ³)	333 mg/m ³
United Kingdom	WEL STEL (ppm)	250 ppm
Norway	Grenseverdier (AN) (mg/m ³)	130 mg/m ³
Norway	Grenseverdier (AN) (ppm)	100 ppm
Norway	Grenseverdier (Korttidsverdi) (mg/m ³)	162,5 mg/m ³ (value calculated)
Norway	Grenseverdier (Korttidsverdi) (ppm)	125 ppm (value calculated)
Switzerland	MAK (mg/m ³)	260 mg/m ³
Switzerland	MAK (ppm)	200 ppm
Switzerland	KZGW (mg/m ³)	1040 mg/m ³
Switzerland	KZGW (ppm)	800 ppm
Australia	TWA (mg/m ³)	262 mg/m ³
Australia	TWA (ppm)	200 ppm
Australia	STEL (mg/m ³)	328 mg/m ³
Australia	STEL (ppm)	250 ppm
Canada (Quebec)	VECD (mg/m ³)	328 mg/m ³
Canada (Quebec)	VECD (ppm)	250 ppm
Canada (Quebec)	VEMP (mg/m ³)	262 mg/m ³
Canada (Quebec)	VEMP (ppm)	200 ppm
USA - ACGIH	ACGIH TWA (ppm)	200 ppm
USA - ACGIH	ACGIH STEL (ppm)	250 ppm

	SAFETY DATA SHEET	Page : 8 / 58
		Revision nr : 1.0
	Methanol	Issue date : 21/09/2018
		Supersedes :

methanol (67-56-1)		
USA - IDLH	US IDLH (ppm)	6000 ppm
USA - NIOSH	NIOSH REL (TWA) (mg/m ³)	260 mg/m ³
USA - NIOSH	NIOSH REL (TWA) (ppm)	200 ppm
USA - NIOSH	NIOSH REL (STEL) (mg/m ³)	325 mg/m ³
USA - NIOSH	NIOSH REL (STEL) (ppm)	250 ppm
USA - OSHA	OSHA PEL (TWA) (mg/m ³)	260 mg/m ³
USA - OSHA	OSHA PEL (TWA) (ppm)	200 ppm

Additional information : Personal air monitoring :. Room air monitoring. Recommended monitoring procedures


8.2. Exposure controls

- Engineering measure(s) : Provide adequate ventilation. Organisational measures to prevent /limit releases, dispersion and exposure. Safe handling: see section 7 . Handle substance within a closed system. Emergency safety showers should be available in the immediate vicinity of any potential exposure. Provide extract ventilation to points where emissions occur. Take precautionary measures against static discharges. Ensure equipment is adequately earthed. Use explosion-proof machinery, apparatus, ventilation facilities, tools etc.
- Personal protective equipment : The type of protective equipment must be selected according to the concentration and amount of the dangerous substance at the specific workplace.
- Hand protection : Wear chemically resistant gloves (tested to EN374) . Suitable material: Butyl rubber. Breakthrough time : > 8h. Thickness : 0.6 - 0.8 mm. The quality of the protective gloves resistant to chemicals must be chosen as a function of the specific working place concentration and quantity of hazardous substances.
- Eye protection : Use suitable eye protection. (EN166): tightly fitting safety goggles
- Body protection : Wear suitable coveralls to prevent exposure to the skin. (Use chemically protective clothing)
- Respiratory protection : In case of insufficient ventilation, wear suitable respiratory equipment. Half-face mask (EN 140). Full face mask (EN 136). Filter type: Type AX (EN 141). The filter class must be suitable for the maximum contaminant concentration (gas/vapour/aerosol/particulates) that may arise when handling the product. If the concentration is exceeded, self-contained breathing apparatus must be used. (EN 137)
- Thermal hazard protection : Not required for normal conditions of use. Use dedicated equipment.
- Environmental exposure controls : Avoid release to the environment. Comply with applicable Community environmental protection legislation.

SECTION 9: Physical and chemical properties

9.1. Information on basic physical and chemical properties

- Physical state : Liquid
- Appearance : liquid.
- Colour : Colourless.
- Odour : No data available
- Odour threshold : No data available
- pH : Not applicable
- Relative evaporation rate (butylacetate=1) : No data available
- Melting / freezing point : -97,8 °C @ 101 325 Pa
- Freezing point : No data available

	SAFETY DATA SHEET	Page : 9 / 58
		Revision nr : 1.0
	Methanol	Issue date : 21/09/2018
		Supersedes :

Initial boiling point and boiling range	: 64,7 °C @ 101 325 Pa
Flash point	: 9,7 °C @ 1013 hPa
Auto-ignition temperature	: 455 °C @ 1013 hPa
Decomposition temperature	: No data available
Flammability (solid, gas)	: Not applicable, liquid
Vapour pressure	: 169,27 hPa @ 25°C
Vapour density	: No data available
Relative density	: 0,79 - 0,8 @ 20°C
Solubility	: Water: Miscible
Partition coefficient n-octanol/water	: -0,77 @ 20°C
Kinematic viscosity	: No data available
Dynamic viscosity	: 0,544 - 0,59 mPa.s @ 25°C
Explosive properties	: Not applicable. The study does not need to be conducted because there are no chemical groups associated with explosive properties present in the molecule.
Oxidising properties	: Not applicable. The classification procedure needs not to be applied because there are no chemical groups present in the molecule which are associated with oxidising properties.
Explosive limits	: No data available

9.2. Other information

No data available

SECTION 10: Stability and reactivity

10.1. Reactivity

Highly flammable liquid and vapour. Reference to other sections: 10.4 & 10.5.

10.2. Chemical stability

Stable under normal conditions.

10.3. Possibility of hazardous reactions

Reacts violently with oxidizing substances. Fire hazard . Risk of explosion. Reference to other sections 10.5 .

10.4. Conditions to avoid

Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking. Safe handling: see section 7.

10.5. Incompatible materials

Oxidising substances. Safe handling: see section 7.

10.6. Hazardous decomposition products

Reference to other sections: 5.2.

SECTION 11: Toxicological information

11.1. Information on toxicological effects

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

methanol (67-56-1)	
LD50/oral/rat	6200 mg/kg (ATE: 100 mg/kg)
LD50/dermal/rabbit	15840 mg/kg ((ATE: 300 mg/kg)
LC50/inhalation/4h/rat (ppm)	8h 128,2 ppm (ATE: 3 mg/l ((Vapours)

Skin corrosion/irritation	: Not classified (Based on available data, the classification criteria are not met.) pH: Not applicable
Serious eye damage/irritation	: Not classified (Based on available data, the classification criteria are not met.) pH: Not applicable



SAFETY DATA SHEET

Page : 10 / 58

Revision nr : 1.0

Issue date : 21/09/2018

Methanol

Supersedes :

Respiratory or skin sensitisation	: Not classified (Based on available data, the classification criteria are not met.)
Germ cell mutagenicity	: Not classified (Based on available data, the classification criteria are not met.)
Carcinogenicity	: Not classified (Based on available data, the classification criteria are not met.)
Reproductive toxicity	: Not classified (Based on available data, the classification criteria are not met.)
STOT-single exposure	: Causes damage to organs (central nervous system, optic nerve).
STOT-repeated exposure	: Not classified (Based on available data, the classification criteria are not met.)
Aspiration hazard	: Not classified (Based on available data, the classification criteria are not met.)
Other information	: Symptoms related to the physical, chemical and toxicological characteristics. For further information see section 4.

SECTION 12: Ecological information

12.1. Toxicity

Environmental properties : According to the criteria of the European classification and labelling system, the substance/the product has not to be labelled as "dangerous for the environment".

methanol (67-56-1)	
LC50 fish 1	28200 mg/l (Exposure time: 96 h - Species: Pimephales promelas [flow-through])
EC50 Daphnia 1	> 10000 mg/l (48h - Daphnia magna - DIN 38412 TEIL 11)
EC50 other aquatic organisms 1	22000 mg/l (96h - Pseudokirchnerella subcapitata - OECD 201)
LC50 fish 2	> 100 mg/l (Exposure time: 96 h - Species: Pimephales promelas [static])
NOEC(200h), fish, Chronic, Oryzias latipes (Ricefish)	7900 mg/l

12.2. Persistence and degradability

Methanol (67-56-1)	
Persistence and degradability	Readily biodegradable.

12.3. Bioaccumulative potential

Methanol (67-56-1)	
Partition coefficient n-octanol/water	-0,77 @ 20°C
Bioaccumulative potential	No data available.

methanol (67-56-1)	
BCF fish 1	< 10
Partition coefficient n-octanol/water	-0,77

12.4. Mobility in soil

Methanol (67-56-1)	
Mobility in soil	No data available


12.5. Results of PBT and vPvB assessment

Methanol (67-56-1)	
Results of PBT assessment	Not PBT\ vPvB

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

12.6. Other adverse effects

Other adverse effects : No data available.

	SAFETY DATA SHEET	Page : 11 / 58
		Revision nr : 1.0
	Methanol	Issue date : 21/09/2018
		Supersedes :

SECTION 13: Disposal considerations

13.1. Waste treatment methods

Product/Packaging disposal recommendations : Avoid release to the environment. Dispose of empty containers and wastes safely. Safe handling: see section 7. Refer to manufacturer/supplier for information on recovery/recycling. Recycling is preferred to disposal or incineration. If recycling is not possible, eliminate in accordance with local valid waste disposal regulations. Handle contaminated packages in the same way as the substance itself. Dispose of contaminated materials in accordance with current regulations. Packaging contaminated by the product : Do not pierce or burn, even after use. Never use pressure to empty container.

European waste catalogue (2001/573/EC, 75/442/EEC, 91/689/EEC) : This material and its container must be disposed of as hazardous waste
Waste codes should be assigned by the user, preferably in discussion with the waste disposal authorities.

SECTION 14: Transport information

In accordance with ADR / RID / IMDG / IATA / ADN


ADR	IMDG	IATA	ADN	RID
14.1. UN number				
1230	1230	1230	1230	1230
14.2. UN proper shipping name				
METHANOL	METHANOL	Methanol	METHANOL	METHANOL
Transport document description				
UN 1230 METHANOL, 3 (6.1), II, (D/E)	UN 1230 METHANOL, 3 (6.1), II (12°C c.c.)	UN 1230 Methanol, 3 (6.1), II	UN 1230 METHANOL, 3 (6.1), II	UN 1230 METHANOL, 3 (6.1), II
14.3. Transport hazard class(es)				
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				
Dangerous for the environment : No	Dangerous for the environment : No Marine pollutant : No	Dangerous for the environment : No	Dangerous for the environment : No	Dangerous for the environment : No
No supplementary information available				

14.6. Special precautions for user

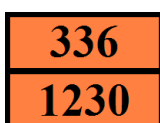
Special precautions for user : No data available

- Overland transport

Classification code (ADR) : FT1
 Special provisions : 279
 Limited quantities (ADR) : 11
 Excepted quantities (ADR) : E2
 Packing instructions (ADR) : P001, IBC02
 Mixed packing provisions (ADR) : MP19
 Portable tank and bulk container instructions (ADR) : T7
 Portable tank and bulk container special provisions (ADR) : TP2

	SAFETY DATA SHEET	Page : 12 / 58
		Revision nr : 1.0
	Methanol	Issue date : 21/09/2018
		Supersedes :

Tank code (ADR) : L4BH
 Tank special provisions (ADR) : TU15
 Vehicle for tank carriage : FL
 Transport category (ADR) : 2
 Special provisions for carriage - Loading, unloading and handling (ADR) : CV13, CV28
 Special provisions for carriage - Operation (ADR) : S2, S19
 Hazard identification number (Kemler No.) : 336
 Orange plates :



Tunnel restriction code : D/E
 EAC code : •2WE
 APP code : A(fl)

- Transport by sea


Special provisions (IMDG) : 279
 Limited quantities (IMDG) : 1 L
 Excepted quantities (IMDG) : E2
 Packing instructions (IMDG) : P001
 IBC packing instructions (IMDG) : IBC02
 Tank instructions (IMDG) : T7
 Tank special provisions (IMDG) : TP2
 EmS-No. (Fire) : F-E
 EmS-No. (Spillage) : S-D
 Stowage category (IMDG) : B
 Stowage and handling (IMDG) : SW2
 Flash point (IMDG) : 12°C c.c.
 Properties and observations (IMDG) : Colourless, volatile liquid. Flashpoint: 12°C c.c. Explosive limits: 6% to 36.5% Miscible with water. Toxic if swallowed; may cause blindness. Avoid skin contact.

- Air transport

PCA Excepted quantities (IATA) : E2
 PCA Limited quantities (IATA) : Y341
 PCA limited quantity max net quantity (IATA) : 1L
 PCA packing instructions (IATA) : 352
 PCA max net quantity (IATA) : 1L
 CAO packing instructions (IATA) : 364
 CAO max net quantity (IATA) : 60L
 Special provisions (IATA) : A113
 ERG code (IATA) : 3L

- Inland waterway transport

Classification code (ADN) : FT1
 Special provisions (ADN) : 279, 802
 Limited quantities (ADN) : 1 L
 Excepted quantities (ADN) : E2
 Carriage permitted (ADN) : T

	SAFETY DATA SHEET	Page : 13 / 58
		Revision nr : 1.0
	Methanol	Issue date : 21/09/2018
		Supersedes :

Equipment required (ADN) : PP, EP, EX, TOX, A
 Ventilation (ADN) : VE01, VE02
 Number of blue cones/lights (ADN) : 2

- Rail transport

Classification code (RID) : FT1
 Special provisions (RID) : 279
 Limited quantities (RID) : 1L
 Excepted quantities (RID) : E2
 Packing instructions (RID) : P001, IBC02
 Mixed packing provisions (RID) : MP19
 Portable tank and bulk container instructions (RID) : T7
 Portable tank and bulk container special provisions (RID) : TP2
 Tank codes for RID tanks (RID) : L4BH
 Special provisions for RID tanks (RID) : TU15
 Transport category (RID) : 2
 Special provisions for carriage - Loading, unloading and handling (RID) : CW13, CW28
 Colis express (express parcels) (RID) : CE7
 Hazard identification number (RID) : 336

14.7. Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code

Code: IBC : No data available.

SECTION 15: Regulatory information

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

15.1.1. EU-Regulations


The following restrictions are applicable according to Annex XVII of the REACH Regulation (EC) No 1907/2006:

3. Liquid substances or mixtures which are regarded as dangerous in accordance with Directive 1999/45/EC or are fulfilling the criteria for any of the following hazard classes or categories set out in Annex I to Regulation (EC) No 1272/2008	methanol
3(a) Substances or mixtures fulfilling the criteria for any of the following hazard classes or categories set out in Annex I to Regulation (EC) No 1272/2008: Hazard classes 2.1 to 2.4, 2.6 and 2.7, 2.8 types A and B, 2.9, 2.10, 2.12, 2.13 categories 1 and 2, 2.14 categories 1 and 2, 2.15 types A to F	Methanol - methanol
3(b) Substances or mixtures fulfilling the criteria for any of the following hazard classes or categories set out in Annex I to Regulation (EC) No 1272/2008: Hazard classes 3.1 to 3.6, 3.7 adverse effects on sexual function and fertility or on development, 3.8 effects other than narcotic effects, 3.9 and 3.10	Methanol - methanol
40. Substances classified as flammable gases category 1 or 2, flammable liquids categories 1, 2 or 3, flammable solids category 1 or 2, substances and mixtures which, in contact with water, emit flammable gases, category 1, 2 or 3, pyrophoric liquids category 1 or pyrophoric solids category 1, regardless of whether they appear in Part 3 of Annex VI to Regulation (EC) No 1272/2008 or not.	Methanol - methanol

Methanol is not on the REACH Candidate List
 Methanol is not on the REACH Annex XIV List

15.1.2. National regulations

France

	SAFETY DATA SHEET	Page : 14 / 58
		Revision nr : 1.0
	Methanol	Issue date : 21/09/2018
		Supersedes :

No ICPE	Installations classées Désignation de la rubrique	Code Régime	Rayon
4130.2a	2. Substances et mélanges liquides. La quantité totale susceptible d'être présente dans l'installation étant : a) Supérieure ou égale à 10 t Quantité seuil bas au sens de l'article R. 511-10 : 50 t. Quantité seuil haut au sens de l'article R. 511-10 : 200 t.	A	1
4130.2b	2. Substances et mélanges liquides. La quantité totale susceptible d'être présente dans l'installation étant : b) Supérieure ou égale à 1 t, mais inférieure à 10 t Quantité seuil bas au sens de l'article R. 511-10 : 50 t. Quantité seuil haut au sens de l'article R. 511-10 : 200 t.	D	
4150.text	Toxicité spécifique pour certains organes cibles (STOT) exposition unique catégorie 1. La quantité totale susceptible d'être présente dans l'installation étant :		
4150.1	1. Supérieure ou égale à 20 t Quantité seuil bas au sens de l'article R. 511-10 : 50 t. Quantité seuil haut au sens de l'article R. 511-10 : 200 t.	A	1
4150.2	2. Supérieure ou égale à 5 t, mais inférieure à 20 t Quantité seuil bas au sens de l'article R. 511-10 : 50 t. Quantité seuil haut au sens de l'article R. 511-10 : 200 t.	D	
4331.text	Liquides inflammables de catégorie 2 ou catégorie 3 à l'exclusion de la rubrique 4330. La quantité totale susceptible d'être présente dans les installations y compris dans les cavités souterraines étant :		
4331.1	1. Supérieure ou égale à 1000 t Quantité seuil bas au sens de l'article R. 511-10 : 5 000 t. Quantité seuil haut au sens de l'article R. 511-10 : 50 000 t.	A	2
4331.2	2. Supérieure ou égale à 100 t mais inférieure à 1000 t Quantité seuil bas au sens de l'article R. 511-10 : 5 000 t. Quantité seuil haut au sens de l'article R. 511-10 : 50 000 t.	E	
4331.3	3. Supérieure ou égale à 50 t mais inférieure à 100 t Quantité seuil bas au sens de l'article R. 511-10 : 5 000 t. Quantité seuil haut au sens de l'article R. 511-10 : 50 000 t.	DC	

Germany

Reference to AwSV : Water hazard class (WGK) 2, significant hazard to water (Classification according to AwSV; ID No. 145)

12th Ordinance Implementing the Federal Immission Control Act - 12.BImSchV : Is not subject of the 12. BImSchV (Hazardous Incident Ordinance)

Netherlands

Waterbezwaarlijkheid : B (5) - Weinig schadelijk voor in het water levende organismen

SZW-lijst van kankerverwekkende stoffen : The substance is not listed

SZW-lijst van mutagene stoffen : The substance is not listed


NIET-limitatieve lijst van voor de voortplanting giftige stoffen – Borstvoeding : The substance is not listed

NIET-limitatieve lijst van voor de voortplanting giftige stoffen – Vruchtbaarheid : The substance is not listed

NIET-limitatieve lijst van voor de voortplanting giftige stoffen – Ontwikkeling : Methanol is listed

Denmark

Class for fire hazard : Class I-1

	SAFETY DATA SHEET	Page : 15 / 58
		Revision nr : 1.0
	Methanol	Issue date : 21/09/2018
		Supersedes :

Store unit : 1 liter

Classification remarks : F <Flam. Liq. 2>; Emergency management guidelines for the storage of flammable liquids must be followed

Recommendations Danish Regulation : Young people below the age of 18 years are not allowed to use the product
Pregnant/breastfeeding women working with the product must not be in direct contact with the product

15.2. Chemical safety assessment

Not applicable.


SECTION 16: Other information

Abbreviations and acronyms:

	ABM = Algemene beoordelingsmethodiek
	ADN = Accord Européen relatif au Transport International des Marchandises Dangereuses par voie de Navigation du Rhin
	ADR = Accord européen relatif au transport international des marchandises Dangereuses par Route
	CLP = Classification, Labelling and Packaging Regulation according to 1272/2008/EC
	IATA = International Air Transport Association
	IMDG = International Maritime Dangerous Goods Code
	LEL = Lower Explosive Limit/Lower Explosion Limit
	UEL = Upper Explosion Limit/Upper Explosive Limit
	REACH = Registration, Evaluation, Authorisation and Restriction of Chemicals
	BTT = Breakthrough time (maximum wearing time)
	DMEL = Derived Minimal Effect level
	DNEL = Derived No Effect Level
	EC50 = Median Effective Concentration
	EL50 = Median effective level
	ErC50 = EC50 in terms of reduction of growth rate
	ErL50 = EL50 in terms of reduction of growth rate
	EWC = European waste catalogue
	LC50 = Median lethal concentration
	LD50 = Median lethal dose
	LL50 = Median lethal level
	NA = Not applicable
	NOEC = No observed effect concentration
	NOEL: no-observed-effect level
	NOELR = No observed effect loading rate
	NOAEC = No observed adverse effect concentration
	NOAEL = No observed adverse effect level
	N.O.S. = Not Otherwise Specified
	OEL = Occupational Exposure Limits - Short Term Exposure Limits (STELs)
	PNEC = Predicted No Effect Concentration
	Quantitative structure-activity relationship (QSAR)
	STOT = Specific Target Organ Toxicity
	TWA = time weighted average
	VOC = Volatile organic compounds
	WGK = Wassergefährdungsklasse (Water Hazard Class under German Federal Water Management Act)

Sources of key data used to compile the datasheet : European Chemicals Agency (<http://echa.europa.eu>) Info from supplier. CSR Methanol.

Training advice : Training staff on good practice. Manipulations are to be done only by qualified and authorised persons.


	SAFETY DATA SHEET	Page : 16 / 58
		Revision nr : 1.0
	Methanol	Issue date : 21/09/2018
		Supersedes :

Full text of H- and EUH-statements:

Acute Tox. 3 (Dermal)	Acute toxicity (dermal), Category 3
Acute Tox. 3 (Inhalation)	Acute toxicity (inhal.), Category 3
Acute Tox. 3 (Inhalation:vapour)	Acute toxicity (inhal.), Category 3
Acute Tox. 3 (Oral)	Acute toxicity 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.
H331	Toxic if inhaled.
H370	Causes damage to organs.

Full text of use descriptors


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)
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
ERC9b	Wide dispersive outdoor use of substances in closed systems
PC13	Fuels
PC35	Washing and cleaning products (including solvent based products)
PC4	Anti-Freeze and De-icing products
PROC1	Use in closed process, no likelihood of exposure
PROC10	Roller application or brushing of adhesive and other coating.
PROC11	Non-industrial spraying
PROC13	Treatment of articles by dipping and pouring
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 PPE available
PROC2	Use in closed, continuous process with occasional controlled exposure
PROC3	Use in closed batch process (synthesis or formulation)
PROC4	Use in batch 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

	SAFETY DATA SHEET	Page : 17 / 58
		Revision nr : 1.0
	Methanol	Issue date : 21/09/2018
		Supersedes :

PROC9	Transfer of substance or mixture into small containers (dedicated filling line, including weighing)
SU10	Formulation [mixing] of preparations and/or re-packaging (excluding alloys)
SU21	Consumer uses: Private households (= general public = consumers)
SU22	Professional uses: Public domain (administration, education, entertainment, services, craftsmen)
SU3	Industrial uses: Uses of substances as such or in preparations* at industrial sites
SU8	Manufacture of bulk, large scale chemicals (including petroleum products)
SU9	Manufacture of fine chemicals


According to Regulation (EC) No. 1907/2006 (REACH) with its amendment Regulation (EU) 2015/830
Classification according to Regulation (EC) No. 1272/2008 [CLP]
Labelling according to Regulation (EC) No. 1272/2008 [CLP]

DISCLAIMER OF LIABILITY The information in this SDS was obtained from sources which we believe are reliable. However, the information is provided without any warranty, express or implied, regarding its correctness. The conditions or methods of handling, storage, use or disposal of the product are beyond our control and may be beyond our knowledge. For this and other reasons, we do not assume responsibility and expressly disclaim liability for loss, damage or expense arising out of or in any way connected with the handling, storage, use or disposal of the product. This SDS was prepared and is to be used only for this product. If the product is used as a component in another product, this SDS information may not be applicable.

	SAFETY DATA SHEET	Page : 18 / 58
		Revision nr : 1.0
	Methanol	Issue date : 21/09/2018
		Supersedes :

Annex to the safety data sheet

Annex : Identified uses						
Title	Sector of use	Product category	Process category	Article category	Environmental release	SPERC
Manufacture of substance Use as an intermediate Use as a process chemical	SU3, SU8, SU9		PROC1, PROC2, PROC3, PROC4, PROC8a, PROC8b, PROC15		ERC1, ERC4, ERC6a	
Distribution of substance	SU3, SU8, SU9		PROC1, PROC2, PROC3, PROC4, PROC8a, PROC8b, PROC9		ERC1, ERC2	
Formulation & (re)packing of substances and mixtures	SU3, SU10		PROC1, PROC2, PROC3, PROC4, PROC8a, PROC8b, PROC9, PROC15		ERC2	
Use as a fuel	SU3		PROC1, PROC2, PROC3, PROC8a, PROC8b, PROC16, PROC19		ERC8b	
Use as a fuel	SU22		PROC1, PROC2, PROC3, PROC8a, PROC8b, PROC16, PROC19		ERC8b, ERC8e	
Use in cleaning agents	SU3		PROC1, PROC2, PROC3, PROC4, PROC7, PROC8a, PROC8b, PROC10, PROC13		ERC4	
Use in cleaning agents	SU22		PROC1, PROC2, PROC3, PROC4, PROC8a, PROC8b, PROC10,		ERC8a, ERC8d	

	SAFETY DATA SHEET		Page : 19 / 58
			Revision nr : 1.0
			Issue date : 21/09/2018
	Methanol		Supersedes :

			PROC11, PROC13			
Use as laboratory reagent	SU3		PROC10, PROC15		ERC4	
Use as laboratory reagent	SU22		PROC10, PROC15		ERC8a	
Industrial use as wastewater treatment chemical	SU3		PROC2		ERC9b	
Use in oil and gas field drilling and production operations	SU22		PROC4, PROC5, PROC8a, PROC8b		ERC9b	
Consumer use of cleaning agents and de-icers (liquid products)	SU21	PC4, PC35			ERC8a, ERC8d	
Consumer use of cleaning agents and de-icers (spray products)	SU21	PC4, PC35			ERC8a, ERC8d	
Consumer use of fuels indoors (Domestic/hobby use e.g in model engines, fuel cells, fondue sets)	SU21	PC13			ERC8b	
Consumer use of fuels outdoors (gasoline additive)	SU21		PROC16		ERC8e	

1. Exposure scenario 01

Manufacture of substance


ES Ref.: 01 ES Type: Worker

Use descriptors	PROC1, PROC2, PROC3, PROC4, PROC8a, PROC8b, PROC15 SU3, SU8, SU9 ERC1, ERC4, ERC6a
Processes, tasks activities covered	Manufacture of the substance or use as an intermediate or process chemical or extraction agent. Includes recycling/ recovery, material transfers, storage, maintenance and loading (including marine vessel/barge, road/rail car and bulk container), sampling and associated laboratory activities Industrial use
Assessment method	see section 3 of this exposure scenario.

2. Operational conditions and risk management measures

2.1.1 Contributing scenario controlling worker exposure (PROC1, PROC2, PROC3, PROC4)

PROC1	Use in closed process, no likelihood of exposure
PROC2	Use in closed, continuous process with occasional controlled exposure
PROC3	Use in closed batch process (synthesis or formulation)
PROC4	Use in batch and other process (synthesis) where opportunity for exposure arises

	SAFETY DATA SHEET	Page : 20 / 58
		Revision nr : 1.0
	Methanol	Issue date : 21/09/2018
		Supersedes :

Product characteristics

Physical form	liquid
Concentration of the Substance in Mixture/Article	Covers percentage substance in the product up to 100 % (unless stated differently).
Vapour pressure	169,27 hPa

Operational conditions

Amount used	not relevant	
Frequency and duration of use	Exposure duration	> 4 hours/day
	Exposure frequency	≤ 240 days/year
Human factors not influenced by risk management	dermal exposure	Palm of one hand (240cm ²) (PROC 1 & 3)
	dermal exposure	Palms of both hands (480 cm ²) (PROC 2 & 4)
Other given operational conditions affecting workers exposure	Indoor use	

Risk management measures

Technical conditions and measures at process level to prevent release	none	
Technical conditions and measures to control dispersion from the source towards the worker	without local exhaust ventilation	PROC 1
	with local exhaust ventilation, Effectiveness : 90%	PROC 2, 3 & 4
Organisational measures to prevent /limit releases, dispersion and exposure	not relevant	
Conditions and measures related to personal protection, hygiene and health evaluation	Respiratory protection	Not required

2.1.2 Contributing scenario controlling worker exposure (PROC8a, PROC8b)

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

Product characteristics

Physical form	liquid
Concentration of the Substance in Mixture/Article	Covers percentage substance in the product up to 100 % (unless stated differently).
Vapour pressure	169,27 hPa

Operational conditions


Amount used	not relevant	
Frequency and duration of use	Exposure duration	> 4 hours/day
	Exposure frequency	≤ 240 days/year
Human factors not influenced by risk management	dermal exposure	Palms of both hands (480 cm ²) (PROC 8b & 9)
	dermal exposure	Both hands (960 cm ²) (PROC 8a)
Other given operational conditions affecting workers exposure	Indoor use	

Risk management measures

Technical conditions and measures at process level to prevent release	none	
Technical conditions and measures to control dispersion from the source towards the worker	with local exhaust ventilation, Effectiveness : 90%	PROC 8a
	with local exhaust ventilation, Effectiveness : 97%	PROC 8b
Organisational measures to prevent /limit releases, dispersion and exposure	not relevant	
Conditions and measures related to personal protection, hygiene and health evaluation	Respiratory protection	Not required

2.1.3 Contributing scenario controlling worker exposure (PROC15)

PROC15	Use as laboratory reagent
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	SAFETY DATA SHEET	Page : 21 / 58
		Revision nr : 1.0
	Methanol	Issue date : 21/09/2018
		Supersedes :

Product characteristics

Physical form	liquid
Concentration of the Substance in Mixture/Article	Covers percentage substance in the product up to 100 % (unless stated differently).
Vapour pressure	169,27 hPa

Operational conditions

Amount used	not relevant	
Frequency and duration of use	Exposure duration	> 4 hours/day
	Exposure frequency	≤ 240 days/year
Human factors not influenced by risk management	dermal exposure	Palm of one hand (240cm ²)
Other given operational conditions affecting workers exposure	Indoor use	

Risk management measures

Technical conditions and measures at process level to prevent release	none	
Technical conditions and measures to control dispersion from the source towards the worker	with local exhaust ventilation, Effectiveness : 90%	
Organisational measures to prevent /limit releases, dispersion and exposure	not relevant	
Conditions and measures related to personal protection, hygiene and health evaluation	Respiratory protection	Not required

2.2 Contributing scenario controlling environmental exposure (ERC1, ERC4, ERC6a, ERC6b)

Not applicable	
ERC1	Manufacture of substances
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

Product characteristics

No additional information

Operational conditions

No additional information

Risk management measures

No additional information

3. Exposure estimation and reference to its source

3.1. Health

Information for contributing exposure scenario	
2.1.1	The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated, (ECETOC TRA v2.0 Worker; modified version)
2.1.2	The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated, (ECETOC TRA v2.0 Worker; modified version)
2.1.3	The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated, (ECETOC TRA v2.0 Worker; modified version)


3.2. Environment

Information for contributing exposure scenario	
2.2	Not applicable

4. Guidance to Downstream User to evaluate whether he works inside the boundaries set by the ES

4.1. Health


Guidance - Health	Predicted exposures are not expected to exceed the DN(M)EL when the Risk Management Measures/Operational Conditions outlined in Section 2 are implemented, Where other Risk Management
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	SAFETY DATA SHEET	Page : 22 / 58
		Revision nr : 1.0
	Methanol	Issue date : 21/09/2018
		Supersedes :

	Measures/Operational Conditions are adopted, then users should ensure that risks are managed to at least equivalent levels.
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4.2. Environment

Guidance - Environment	Not required
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	SAFETY DATA SHEET	Page : 23 / 58
		Revision nr : 1.0
	Methanol	Issue date : 21/09/2018
		Supersedes :

1. Exposure scenario 02

Distribution of substance

ES Ref.: 02
ES Type: Worker

Use descriptors	PROC1, PROC2, PROC3, PROC4, PROC8a, PROC8b, PROC9 SU3, SU8, SU9 ERC1, ERC2
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 sampling, storage, unloading, distribution and associated laboratory activities. Industrial use
Assessment method	see section 3 of this exposure scenario.

2. Operational conditions and risk management measures

2.1.1 Contributing scenario controlling worker exposure (PROC1, PROC2, PROC3, PROC4)

PROC1	Use in closed process, no likelihood of exposure
PROC2	Use in closed, continuous process with occasional controlled exposure
PROC3	Use in closed batch process (synthesis or formulation)
PROC4	Use in batch and other process (synthesis) where opportunity for exposure arises

Product characteristics

Physical form	liquid
Concentration of the Substance in Mixture/Article	Covers percentage substance in the product up to 100 % (unless stated differently).
Vapour pressure	169,27 hPa

Operational conditions

Amount used	not relevant	
Frequency and duration of use	Exposure duration	> 4 hours/day
	Exposure frequency	≤ 240 days/year
Human factors not influenced by risk management	dermal exposure	Palm of one hand (240cm ²) (PROC 1 & 3)
	dermal exposure	Palms of both hands (480 cm ²) (PROC 2 & 4)
Other given operational conditions affecting workers exposure	Indoor use	

Risk management measures


Technical conditions and measures at process level to prevent release	none	
Technical conditions and measures to control dispersion from the source towards the worker	without local exhaust ventilation	PROC 1
	with local exhaust ventilation, Effectiveness : 90%	PROC 2, 3 & 4
Organisational measures to prevent /limit releases, dispersion and exposure	not relevant	
Conditions and measures related to personal protection, hygiene and health evaluation	Respiratory protection	Not required

2.1.2 Contributing scenario controlling worker exposure (PROC8a, PROC8b, PROC9)

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 mixture into small containers (dedicated filling line, including weighing)

Product characteristics

Physical form	liquid
Concentration of the Substance in Mixture/Article	Covers percentage substance in the product up to 100 % (unless stated differently).
Vapour pressure	169,27 hPa

	SAFETY DATA SHEET	Page : 24 / 58
		Revision nr : 1.0
	Methanol	Issue date : 21/09/2018
		Supersedes :

Operational conditions

Amount used	not relevant	
Frequency and duration of use	Exposure duration	> 4 hours/day
	Exposure frequency	≤ 240 days/year
Human factors not influenced by risk management	dermal exposure	Palms of both hands (480 cm ²) (PROC 8b & 9)
	dermal exposure	Both hands (960 cm ²) (PROC 8a)
Other given operational conditions affecting workers exposure	Indoor use	

Risk management measures

Technical conditions and measures at process level to prevent release	none	
Technical conditions and measures to control dispersion from the source towards the worker	with local exhaust ventilation, Effectiveness : 90%	PROC 8a & 9
	with local exhaust ventilation, Effectiveness : 97%	PROC 8b
Organisational measures to prevent /limit releases, dispersion and exposure	not relevant	
Conditions and measures related to personal protection, hygiene and health evaluation	Respiratory protection	Not required

2.2 Contributing scenario controlling environmental exposure (ERC1, ERC2)

Not applicable	
ERC1	Manufacture of substances
ERC2	Formulation of preparations

Product characteristics

No additional information

Operational conditions

No additional information

Risk management measures

No additional information

3. Exposure estimation and reference to its source

3.1. Health

Information for contributing exposure scenario	
2.1.1	The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated, (ECETOC TRA v2.0 Worker; modified version)
2.1.2	The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated, (ECETOC TRA v2.0 Worker; modified version)

3.2. Environment

Information for contributing exposure scenario	
2.2	Not applicable


4. Guidance to Downstream User to evaluate whether he works inside the boundaries set by the ES

4.1. Health

Guidance - Health	Predicted exposures are not expected to exceed the DN(M)EL when the Risk Management Measures/Operational Conditions outlined in Section 2 are implemented, Where other Risk Management Measures/Operational Conditions are adopted, then users should ensure that risks are managed to at least equivalent levels.
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4.2. Environment

Guidance - Environment	Not required
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	SAFETY DATA SHEET	Page : 25 / 58
		Revision nr : 1.0
	Methanol	Issue date : 21/09/2018
		Supersedes :

1. Exposure scenario 03

Formulation & (re)packing of substances and mixtures

ES Ref.: 03

ES Type: Worker

Use descriptors	PROC1, PROC2, PROC3, PROC4, PROC8a, PROC8b, PROC9, PROC15 SU3, SU10 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 Industrial use
Assessment method	see section 3 of this exposure scenario.

2. Operational conditions and risk management measures

2.1.1 Contributing scenario controlling worker exposure (PROC1, PROC2, PROC3, PROC4)

PROC1	Use in closed process, no likelihood of exposure
PROC2	Use in closed, continuous process with occasional controlled exposure
PROC3	Use in closed batch process (synthesis or formulation)
PROC4	Use in batch and other process (synthesis) where opportunity for exposure arises

Product characteristics

Physical form	liquid
Concentration of the Substance in Mixture/Article	Covers percentage substance in the product up to 100 % (unless stated differently).
Vapour pressure	169,27 hPa

Operational conditions

Amount used	not relevant	
Frequency and duration of use	Exposure duration	> 4 hours/day
	Exposure frequency	≤ 240 days/year
Human factors not influenced by risk management	dermal exposure	Palm of one hand (240cm ²) (PROC 1 & 3)
	dermal exposure	Palms of both hands (480 cm ²) (PROC 2 & 4)
Other given operational conditions affecting workers exposure	Indoor use	

Risk management measures


Technical conditions and measures at process level to prevent release	none	
Technical conditions and measures to control dispersion from the source towards the worker	without local exhaust ventilation	PROC 1
	with local exhaust ventilation, Effectiveness : 90%	PROC 2, 3 & 4
Organisational measures to prevent /limit releases, dispersion and exposure	not relevant	
Conditions and measures related to personal protection, hygiene and health evaluation	Respiratory protection	Not required

2.1.2 Contributing scenario controlling worker exposure (PROC8a, PROC8b, PROC9)

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 mixture into small containers (dedicated filling line, including weighing)

Product characteristics

Physical form	liquid
Concentration of the Substance in Mixture/Article	Covers percentage substance in the product up to 100 % (unless stated differently).

	SAFETY DATA SHEET	Page : 26 / 58
		Revision nr : 1.0
	Methanol	Issue date : 21/09/2018
		Supersedes :

Vapour pressure	169,27 hPa
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Operational conditions

Amount used	not relevant	
Frequency and duration of use	Exposure duration	> 4 hours/day
	Exposure frequency	≤ 240 days/year
Human factors not influenced by risk management	dermal exposure	Palms of both hands (480 cm ²) (PROC 8b & 9)
	dermal exposure	Both hands (960 cm ²) (PROC 8a)
Other given operational conditions affecting workers exposure	Indoor use	

Risk management measures

Technical conditions and measures at process level to prevent release	none	
Technical conditions and measures to control dispersion from the source towards the worker	with local exhaust ventilation, Effectiveness : 90%	PROC 8a & 9
	with local exhaust ventilation, Effectiveness : 97%	PROC 8b
Organisational measures to prevent /limit releases, dispersion and exposure	not relevant	
Conditions and measures related to personal protection, hygiene and health evaluation	Respiratory protection	Not required

2.1.3 Contributing scenario controlling worker exposure (PROC15)

PROC15	Use as laboratory reagent
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Product characteristics

Physical form	liquid
Concentration of the Substance in Mixture/Article	Covers percentage substance in the product up to 100 % (unless stated differently).
Vapour pressure	169,27 hPa

Operational conditions

Amount used	not relevant	
Frequency and duration of use	Exposure duration	> 4 hours/day
	Exposure frequency	≤ 240 days/year
Human factors not influenced by risk management	dermal exposure	Palm of one hand (240cm ²)
Other given operational conditions affecting workers exposure	Indoor use	

Risk management measures

Technical conditions and measures at process level to prevent release	none	
Technical conditions and measures to control dispersion from the source towards the worker	with local exhaust ventilation, Effectiveness : 90%	
Organisational measures to prevent /limit releases, dispersion and exposure	not relevant	
Conditions and measures related to personal protection, hygiene and health evaluation	Respiratory protection	Not required

2.2 Contributing scenario controlling environmental exposure (ERC2)


Not applicable	
ERC2	Formulation of preparations

Product characteristics

No additional information

Operational conditions

No additional information

	SAFETY DATA SHEET	Page : 27 / 58
		Revision nr : 1.0
	Methanol	Issue date : 21/09/2018
		Supersedes :

Risk management measures

No additional information

3. Exposure estimation and reference to its source

3.1. Health

Information for contributing exposure scenario	
2.1.1	The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated,(ECETOC TRA v2.0 Worker; modified version)
2.1.2	The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated,(ECETOC TRA v2.0 Worker; modified version)
2.1.3	The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated,(ECETOC TRA v2.0 Worker; modified version)

3.2. Environment

Information for contributing exposure scenario	
2.2	Not applicable


4. Guidance to Downstream User to evaluate whether he works inside the boundaries set by the ES

4.1. Health

Guidance - Health	Predicted exposures are not expected to exceed the DN(M)EL when the Risk Management Measures/Operational Conditions outlined in Section 2 are implemented,Where other Risk Management Measures/Operational Conditions are adopted, then users should ensure that risks are managed to at least equivalent levels.
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4.2. Environment

Guidance - Environment	Not required
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	SAFETY DATA SHEET	Page : 28 / 58
		Revision nr : 1.0
	Methanol	Issue date : 21/09/2018
		Supersedes :

1. Exposure scenario 04

Use as a fuel

ES Ref.: 04
ES Type: Worker

Use descriptors	PROC1, PROC2, PROC3, PROC8a, PROC8b, PROC16, PROC19 SU3 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. Industrial use
Assessment method	see section 3 of this exposure scenario.

2. Operational conditions and risk management measures

2.1.1 Contributing scenario controlling worker exposure (PROC1, PROC2, PROC3)

PROC1	Use in closed process, no likelihood of exposure
PROC2	Use in closed, continuous process with occasional controlled exposure
PROC3	Use in closed batch process (synthesis or formulation)

Product characteristics

Physical form	liquid
Concentration of the Substance in Mixture/Article	Covers percentage substance in the product up to 100 % (unless stated differently).
Vapour pressure	169,27 hPa

Operational conditions

Amount used	not relevant	
Frequency and duration of use	Exposure duration	> 4 hours/day
	Exposure frequency	≤ 240 days/year
Human factors not influenced by risk management	dermal exposure	Palm of one hand (240cm ²) (PROC 1 & 3)
	dermal exposure	Palms of both hands (480 cm ²) (PROC 2)
Other given operational conditions affecting workers exposure	Indoor use	

Risk management measures

Technical conditions and measures at process level to prevent release	none	
Technical conditions and measures to control dispersion from the source towards the worker	without local exhaust ventilation	PROC 1
	with local exhaust ventilation, Effectiveness : 90%	PROC 2 & 3
Organisational measures to prevent /limit releases, dispersion and exposure	not relevant	
Conditions and measures related to personal protection, hygiene and health evaluation	Respiratory protection	Not required

2.1.2 Contributing scenario controlling worker exposure (PROC8a, PROC8b)


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

Product characteristics

Physical form	liquid
Concentration of the Substance in Mixture/Article	Covers percentage substance in the product up to 100 % (unless stated differently).
Vapour pressure	169,27 hPa

Operational conditions

Amount used	not relevant	
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	SAFETY DATA SHEET	Page : 29 / 58
		Revision nr : 1.0
	Methanol	Issue date : 21/09/2018
		Supersedes :

Frequency and duration of use	Exposure duration	> 4 hours/day
	Exposure frequency	≤ 240 days/year
Human factors not influenced by risk management	dermal exposure	Palms of both hands (480 cm ²) (PROC 8b)
	dermal exposure	Both hands (960 cm ²) (PROC 8a)
Other given operational conditions affecting workers exposure	Indoor use	

Risk management measures

Technical conditions and measures at process level to prevent release	none	
Technical conditions and measures to control dispersion from the source towards the worker	with local exhaust ventilation, Effectiveness : 90%	PROC 8a
	with local exhaust ventilation, Effectiveness : 97%	PROC 8b
Organisational measures to prevent /limit releases, dispersion and exposure	not relevant	
Conditions and measures related to personal protection, hygiene and health evaluation	Respiratory protection	Not required

2.1.3 Contributing scenario controlling worker exposure (PROC16)

PROC16	Using material as fuel sources, limited exposure to unburned product to be expected
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Product characteristics

Physical form	liquid
Concentration of the Substance in Mixture/Article	Covers percentage substance in the product up to 100 % (unless stated differently).
Vapour pressure	169,27 hPa

Operational conditions

Amount used	not relevant	
Frequency and duration of use	Exposure duration	> 4 hours/day
	Exposure frequency	≤ 240 days/year
Human factors not influenced by risk management	dermal exposure	Palm of one hand (240cm ²)
Other given operational conditions affecting workers exposure	Indoor use	

Risk management measures

Technical conditions and measures at process level to prevent release	none	
Technical conditions and measures to control dispersion from the source towards the worker	without local exhaust ventilation	
Organisational measures to prevent /limit releases, dispersion and exposure	not relevant	
Conditions and measures related to personal protection, hygiene and health evaluation	Respiratory protection	Not required

2.1.4 Contributing scenario controlling worker exposure (PROC19)


PROC19	Hand-mixing with intimate contact and only PPE available
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Product characteristics

Physical form	liquid
Concentration of the Substance in Mixture/Article	Covers concentrations up to 10%, Unless otherwise stated.
Vapour pressure	169,27 hPa

Operational conditions

Amount used	not relevant	
Frequency and duration of use	Exposure duration	1 - 4 hours/day
	Exposure frequency	≤ 240 days/year
Human factors not influenced by risk management	dermal exposure	both hands and forearms (1980 cm ²)

	SAFETY DATA SHEET	Page : 30 / 58
		Revision nr : 1.0
	Methanol	Issue date : 21/09/2018
		Supersedes :

Other given operational conditions affecting workers exposure	Indoor use	
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Risk management measures

Technical conditions and measures at process level to prevent release	none	
Technical conditions and measures to control dispersion from the source towards the worker	without local exhaust ventilation	
Organisational measures to prevent /limit releases, dispersion and exposure	not relevant	
Conditions and measures related to personal protection, hygiene and health evaluation	Respiratory protection	Not required
	Protective gloves	yes

2.2 Contributing scenario controlling environmental exposure (ERC8b)

Not applicable	
ERC8b	Wide dispersive indoor use of reactive substances in open systems

Product characteristics

No additional information

Operational conditions

No additional information

Risk management measures

No additional information

3. Exposure estimation and reference to its source

3.1. Health

Information for contributing exposure scenario	
2.1.1	The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated,(ECETOC TRA v2.0 Worker; modified version)
2.1.2	The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated,(ECETOC TRA v2.0 Worker; modified version)
2.1.3	The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated,(ECETOC TRA v2.0 Worker; modified version)
2.1.4	The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated,(ECETOC TRA v2.0 Worker; modified version)

3.2. Environment

Information for contributing exposure scenario	
2.2	Not applicable


4. Guidance to Downstream User to evaluate whether he works inside the boundaries set by the ES

4.1. Health

Guidance - Health	Predicted exposures are not expected to exceed the DN(M)EL when the Risk Management Measures/Operational Conditions outlined in Section 2 are implemented,Where other Risk Management Measures/Operational Conditions are adopted, then users should ensure that risks are managed to at least equivalent levels.
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4.2. Environment

Guidance - Environment	Not required
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	SAFETY DATA SHEET	Page : 31 / 58
		Revision nr : 1.0
	Methanol	Issue date : 21/09/2018
		Supersedes :

1. Exposure scenario 05

Use as a fuel

ES Ref.: 05
ES Type: Worker

Use descriptors	PROC1, PROC2, PROC3, PROC8a, PROC8b, PROC16, PROC19 SU22 ERC8b, ERC8e
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. Professional use
Assessment method	see section 3 of this exposure scenario.

2. Operational conditions and risk management measures

2.1.1 Contributing scenario controlling worker exposure (PROC1, PROC2, PROC3)

PROC1	Use in closed process, no likelihood of exposure
PROC2	Use in closed, continuous process with occasional controlled exposure
PROC3	Use in closed batch process (synthesis or formulation)

Product characteristics

Physical form	liquid
Concentration of the Substance in Mixture/Article	Covers percentage substance in the product up to 100 % (unless stated differently).
Vapour pressure	169,27 hPa

Operational conditions

Amount used	not relevant	
Frequency and duration of use	Exposure duration	> 4 hours/day
	Exposure frequency	≤ 240 days/year
Human factors not influenced by risk management	dermal exposure	Palm of one hand (240cm ²) (PROC 1 & 3)
	dermal exposure	Palms of both hands (480 cm ²) (PROC 2)
Other given operational conditions affecting workers exposure	Indoor use	

Risk management measures

Technical conditions and measures at process level to prevent release	none	
Technical conditions and measures to control dispersion from the source towards the worker	without local exhaust ventilation	PROC 1
	with local exhaust ventilation, Effectiveness : 80%	PROC 2 & 3
Organisational measures to prevent /limit releases, dispersion and exposure	not relevant	
Conditions and measures related to personal protection, hygiene and health evaluation	Respiratory protection	Not required

2.1.2 Contributing scenario controlling worker exposure (PROC8a, PROC8b)


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

Product characteristics

Physical form	liquid
Concentration of the Substance in Mixture/Article	Covers concentrations up to 5%, Unless otherwise stated.
Vapour pressure	169,27 hPa

Operational conditions

Amount used	not relevant	
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	SAFETY DATA SHEET	Page : 32 / 58
		Revision nr : 1.0
	Methanol	Issue date : 21/09/2018
		Supersedes :

Frequency and duration of use	Exposure duration	1 - 4 hours/day
	Exposure frequency	≤ 240 days/year
Human factors not influenced by risk management	dermal exposure	Palms of both hands (480 cm ²) 8b
	dermal exposure	Both hands (960 cm ²) 8a
Other given operational conditions affecting workers exposure	Indoor use	

Risk management measures

Technical conditions and measures at process level to prevent release	none	
Technical conditions and measures to control dispersion from the source towards the worker	without local exhaust ventilation	
Organisational measures to prevent /limit releases, dispersion and exposure	not relevant	
Conditions and measures related to personal protection, hygiene and health evaluation	Respiratory protection	Not required

2.1.3 Contributing scenario controlling worker exposure (PROC16)

PROC16	Using material as fuel sources, limited exposure to unburned product to be expected
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Product characteristics

Physical form	liquid
Concentration of the Substance in Mixture/Article	Covers percentage substance in the product up to 100 % (unless stated differently).
Vapour pressure	169,27 hPa

Operational conditions

Amount used	not relevant	
Frequency and duration of use	Exposure duration	> 4 hours/day
	Exposure frequency	≤ 240 days/year
Human factors not influenced by risk management	dermal exposure	Palm of one hand (240cm ²)
Other given operational conditions affecting workers exposure	Indoor use	

Risk management measures

Technical conditions and measures at process level to prevent release	none	
Technical conditions and measures to control dispersion from the source towards the worker	without local exhaust ventilation	
Organisational measures to prevent /limit releases, dispersion and exposure	not relevant	
Conditions and measures related to personal protection, hygiene and health evaluation	Respiratory protection	Not required

2.1.4 Contributing scenario controlling worker exposure (PROC19)


PROC19	Hand-mixing with intimate contact and only PPE available
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Product characteristics

Physical form	liquid
Concentration of the Substance in Mixture/Article	Covers concentrations up to 10%, Unless otherwise stated.
Vapour pressure	169,27 hPa

Operational conditions

Amount used	not relevant	
Frequency and duration of use	Exposure duration	1 - 4 hours/day
	Exposure frequency	≤ 240 days/year
Human factors not influenced by risk management	dermal exposure	both hands and forearms (1980 cm ²)
Other given operational conditions affecting workers	Indoor use	

	SAFETY DATA SHEET	Page : 33 / 58
		Revision nr : 1.0
	Methanol	Issue date : 21/09/2018
		Supersedes :

exposure		
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Risk management measures

Technical conditions and measures at process level to prevent release	none	
Technical conditions and measures to control dispersion from the source towards the worker	without local exhaust ventilation	
Organisational measures to prevent /limit releases, dispersion and exposure	not relevant	
Conditions and measures related to personal protection, hygiene and health evaluation	Respiratory protection	Not required
	Protective gloves	yes

2.2 Contributing scenario controlling environmental exposure (ERC8b, ERC8e)

Not applicable	
ERC8b	Wide dispersive indoor use of reactive substances in open systems
ERC8e	Wide dispersive outdoor use of reactive substances in open systems

Product characteristics

No additional information

Operational conditions

No additional information

Risk management measures

No additional information

3. Exposure estimation and reference to its source

3.1. Health

Information for contributing exposure scenario	
2.1.1	The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated,(ECETOC TRA v2.0 Worker; modified version)
2.1.2	The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated,(ECETOC TRA v2.0 Worker; modified version)
2.1.3	The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated,(ECETOC TRA v2.0 Worker; modified version)
2.1.4	The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated,(ECETOC TRA v2.0 Worker; modified version)

3.2. Environment

Information for contributing exposure scenario	
2.2	Not applicable


4. Guidance to Downstream User to evaluate whether he works inside the boundaries set by the ES

4.1. Health

Guidance - Health	Predicted exposures are not expected to exceed the DN(M)EL when the Risk Management Measures/Operational Conditions outlined in Section 2 are implemented,Where other Risk Management Measures/Operational Conditions are adopted, then users should ensure that risks are managed to at least equivalent levels.
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4.2. Environment

Guidance - Environment	Not required
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	SAFETY DATA SHEET	Page : 34 / 58
		Revision nr : 1.0
	Methanol	Issue date : 21/09/2018
		Supersedes :

1. Exposure scenario 06

Use in cleaning agents

ES Ref.: 06
ES Type: Worker

Use descriptors	PROC1, PROC2, PROC3, PROC4, PROC7, PROC8a, PROC8b, PROC10, PROC13 SU3 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. Industrial use
Assessment method	see section 3 of this exposure scenario.

2. Operational conditions and risk management measures

2.1.1 Contributing scenario controlling worker exposure (PROC1, PROC2, PROC3, PROC4)

PROC1	Use in closed process, no likelihood of exposure
PROC2	Use in closed, continuous process with occasional controlled exposure
PROC3	Use in closed batch process (synthesis or formulation)
PROC4	Use in batch and other process (synthesis) where opportunity for exposure arises

Product characteristics

Physical form	liquid
Concentration of the Substance in Mixture/Article	Covers percentage substance in the product up to 100 % (unless stated differently).
Vapour pressure	169,27 hPa

Operational conditions

Amount used	not relevant	
Frequency and duration of use	Exposure duration	> 4 hours/day
	Exposure frequency	≤ 240 days/year
Human factors not influenced by risk management	dermal exposure	Palm of one hand (240cm ²) (PROC 1 & 3)
	dermal exposure	Palms of both hands (480 cm ²) (PROC 2 & 4)
Other given operational conditions affecting workers exposure	Indoor use	

Risk management measures


Technical conditions and measures at process level to prevent release	none	
Technical conditions and measures to control dispersion from the source towards the worker	without local exhaust ventilation	PROC 1
	with local exhaust ventilation, Effectiveness : 90%	PROC 2, 3 & 4
Organisational measures to prevent /limit releases, dispersion and exposure	not relevant	
Conditions and measures related to personal protection, hygiene and health evaluation	Respiratory protection	Not required

2.1.2 Contributing scenario controlling worker exposure (PROC7)

PROC7	Industrial spraying
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Product characteristics

Physical form	liquid
Concentration of the Substance in Mixture/Article	Covers percentage substance in the product up to 100 % (unless stated differently).
Vapour pressure	169,27 hPa

	SAFETY DATA SHEET		Page : 35 / 58
			Revision nr : 1.0
			Issue date : 21/09/2018
	Methanol		Supersedes :

Operational conditions

Amount used	not relevant	
Frequency and duration of use	Exposure duration	8 hours/day
	Exposure frequency	4 - 5 days/week
Human factors not influenced by risk management	not relevant	
Other given operational conditions affecting workers exposure	Indoor use	
	Covers use in room size of	> 1000 m ³
	Worker is not within one meter of the source	

Risk management measures

Technical conditions and measures at process level to prevent release	none	
Technical conditions and measures to control dispersion from the source towards the worker	Segregation	Worker is not within one meter of the source
	immision controls	Work in a spray cabin without specific ventilation system
Organisational measures to prevent /limit releases, dispersion and exposure	Regular cleaning of work area	
	Ensure regular inspection, cleaning and maintenance of equipment and machines, Inspect and clean equipment regularly.	
Conditions and measures related to personal protection, hygiene and health evaluation	Respiratory protection	Not required

2.1.3 Contributing scenario controlling worker exposure (PROC8a, PROC8b)

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

Product characteristics

Physical form	liquid
Concentration of the Substance in Mixture/Article	Covers percentage substance in the product up to 100 % (unless stated differently).
Vapour pressure	169,27 hPa

Operational conditions

Amount used	not relevant	
Frequency and duration of use	Exposure duration	> 4 hours/day
	Exposure frequency	≤ 240 days/year
Human factors not influenced by risk management	dermal exposure	Palms of both hands (480 cm ²) (PROC 8b)
	dermal exposure	Both hands (960 cm ²) (PROC 8a)
Other given operational conditions affecting workers exposure	Indoor use	

Risk management measures


Technical conditions and measures at process level to prevent release	none	
Technical conditions and measures to control dispersion from the source towards the worker	with local exhaust ventilation, Effectiveness : 97%	PROC 8b
	with local exhaust ventilation, Effectiveness : 90%	PROC 8a
Organisational measures to prevent /limit releases, dispersion and exposure	not relevant	
Conditions and measures related to personal protection, hygiene and health evaluation	Respiratory protection	Not required

2.1.4 Contributing scenario controlling worker exposure (PROC10)

PROC10	Roller application or brushing of adhesive and other coating.
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Product characteristics

Physical form	liquid
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	SAFETY DATA SHEET	Page : 36 / 58
	Methanol	Revision nr : 1.0
		Issue date : 21/09/2018
		Supersedes :

Concentration of the Substance in Mixture/Article	Covers concentrations up to 80%, Unless otherwise stated.
Vapour pressure	169,27 hPa

Operational conditions

Amount used	not relevant	
Frequency and duration of use	Exposure duration	> 4 hours/day
	Exposure frequency	≤ 240 days/year
Human factors not influenced by risk management	dermal exposure	Both hands (960 cm ²)
Other given operational conditions affecting workers exposure	Indoor use	

Risk management measures

Technical conditions and measures at process level to prevent release	none	
Technical conditions and measures to control dispersion from the source towards the worker	with local exhaust ventilation, Effectiveness : 90%	
Organisational measures to prevent /limit releases, dispersion and exposure	not relevant	
Conditions and measures related to personal protection, hygiene and health evaluation	Respiratory protection	Not required

2.1.5 Contributing scenario controlling worker exposure (PROC13)

PROC13	Treatment of articles by dipping and pouring
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Product characteristics

Physical form	liquid
Concentration of the Substance in Mixture/Article	Covers percentage substance in the product up to 100 % (unless stated differently).
Vapour pressure	169,27 hPa

Operational conditions

Amount used	not relevant	
Frequency and duration of use	Exposure duration	> 4 hours/day
	Exposure frequency	≤ 240 days/year
Human factors not influenced by risk management	dermal exposure	Palms of both hands (480 cm ²)
Other given operational conditions affecting workers exposure	Indoor use	

Risk management measures

Technical conditions and measures at process level to prevent release	none	
Technical conditions and measures to control dispersion from the source towards the worker	with local exhaust ventilation, Effectiveness : 90%	
Organisational measures to prevent /limit releases, dispersion and exposure	not relevant	
Conditions and measures related to personal protection, hygiene and health evaluation	Respiratory protection	Not required

2.2 Contributing scenario controlling environmental exposure (ERC8b, ERC8e)


Not applicable	
ERC8b	Wide dispersive indoor use of reactive substances in open systems
ERC8e	Wide dispersive outdoor use of reactive substances in open systems

Product characteristics

No additional information

Operational conditions

No additional information

	SAFETY DATA SHEET	Page : 37 / 58
		Revision nr : 1.0
	Methanol	Issue date : 21/09/2018
		Supersedes :

Risk management measures

No additional information

3. Exposure estimation and reference to its source

3.1. Health

Information for contributing exposure scenario	
2.1.1	The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated,(ECETOC TRA v2.0 Worker; modified version)
2.1.2	Used Stoffenmanager model (v3.5)
2.1.3	The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated,(ECETOC TRA v2.0 Worker; modified version)
2.1.4	The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated,(ECETOC TRA v2.0 Worker; modified version)
2.1.5	The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated,(ECETOC TRA v2.0 Worker; modified version)

3.2. Environment

Information for contributing exposure scenario	
2.2	Not applicable


4. Guidance to Downstream User to evaluate whether he works inside the boundaries set by the ES

4.1. Health

Guidance - Health	Predicted exposures are not expected to exceed the DN(M)EL when the Risk Management Measures/Operational Conditions outlined in Section 2 are implemented,Where other Risk Management Measures/Operational Conditions are adopted, then users should ensure that risks are managed to at least equivalent levels.
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4.2. Environment

Guidance - Environment	Not required
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	SAFETY DATA SHEET	Page : 38 / 58
		Revision nr : 1.0
	Methanol	Issue date : 21/09/2018
		Supersedes :

1. Exposure scenario 07

Use in cleaning agents

ES Ref.: 07
ES Type: Worker

Use descriptors	PROC1, PROC2, PROC3, PROC4, PROC8a, PROC8b, PROC10, PROC11, PROC13 SU22 ERC8a, ERC8d
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). Professional use
Assessment method	see section 3 of this exposure scenario.

2. Operational conditions and risk management measures

2.1.1 Contributing scenario controlling worker exposure (PROC1, PROC2, PROC3, PROC4)

PROC1	Use in closed process, no likelihood of exposure
PROC2	Use in closed, continuous process with occasional controlled exposure
PROC3	Use in closed batch process (synthesis or formulation)
PROC4	Use in batch and other process (synthesis) where opportunity for exposure arises

Product characteristics

Physical form	liquid
Concentration of the Substance in Mixture/Article	Covers percentage substance in the product up to 100 % (unless stated differently).
Vapour pressure	169,27 hPa

Operational conditions

Amount used	not relevant	
Frequency and duration of use	Exposure duration	> 4 hours/day PROC 1, 2 & 3
	Exposure frequency	≤ 240 days/year
	Exposure duration	1 - 4 hours/day PROC 4
Human factors not influenced by risk management	dermal exposure	Palm of one hand (240cm ²) (PROC 1 & 3)
	dermal exposure	Palms of both hands (480 cm ²) (PROC 2 & 4)
Other given operational conditions affecting workers exposure	Indoor use	

Risk management measures


Technical conditions and measures at process level to prevent release	none	
Technical conditions and measures to control dispersion from the source towards the worker	without local exhaust ventilation	PROC 1
	with local exhaust ventilation, Effectiveness : 80%	PROC 2, 3 & 4
Organisational measures to prevent /limit releases, dispersion and exposure	not relevant	
Conditions and measures related to personal protection, hygiene and health evaluation	Respiratory protection	Not required

2.1.2 Contributing scenario controlling worker exposure (PROC8a, PROC8b)

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

Product characteristics

Physical form	liquid
Concentration of the Substance in Mixture/Article	Covers concentrations up to 5%, Unless otherwise stated.

	SAFETY DATA SHEET	Page : 39 / 58
		Revision nr : 1.0
	Methanol	Issue date : 21/09/2018
		Supersedes :

Vapour pressure	169,27 hPa
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Operational conditions

Amount used	not relevant	
Frequency and duration of use	Exposure duration	> 4 hours/day
	Exposure frequency	≤ 240 days/year
Human factors not influenced by risk management	dermal exposure	Palms of both hands (480 cm ²) PROC 8b
	dermal exposure	Both hands (960 cm ²) PROC 8a
Other given operational conditions affecting workers exposure	Indoor use	

Risk management measures

Technical conditions and measures at process level to prevent release	none	
Technical conditions and measures to control dispersion from the source towards the worker	without local exhaust ventilation	
Organisational measures to prevent /limit releases, dispersion and exposure	not relevant	
Conditions and measures related to personal protection, hygiene and health evaluation	Respiratory protection	Not required

2.1.3 Contributing scenario controlling worker exposure (PROC10)

PROC10	Roller application or brushing of adhesive and other coating.
--------	---

Product characteristics

Physical form	liquid
Concentration of the Substance in Mixture/Article	Covers concentrations up to 5%, Unless otherwise stated.
Vapour pressure	169,27 hPa

Operational conditions

Amount used	not relevant	
Frequency and duration of use	Exposure duration	> 4 hours/day
	Exposure frequency	≤ 240 days/year
Human factors not influenced by risk management	dermal exposure	Both hands (960 cm ²)
Other given operational conditions affecting workers exposure	Indoor use	

Risk management measures

Technical conditions and measures at process level to prevent release	none	
Technical conditions and measures to control dispersion from the source towards the worker	without local exhaust ventilation	
Organisational measures to prevent /limit releases, dispersion and exposure	not relevant	
Conditions and measures related to personal protection, hygiene and health evaluation	Respiratory protection	Not required

2.1.4 Contributing scenario controlling worker exposure (PROC11)


PROC11	Non-industrial spraying
--------	-------------------------

Product characteristics

Physical form	liquid
Concentration of the Substance in Mixture/Article	Covers concentrations up to 3%, Unless otherwise stated.
Vapour pressure	169,27 hPa

Operational conditions

Amount used	application rate	5 L/min
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	SAFETY DATA SHEET	Page : 40 / 58
		Revision nr : 1.0
	Methanol	Issue date : 21/09/2018
		Supersedes :

Frequency and duration of use	Exposure duration,per shift:	200 minutes/day. Value taken from Riskofderm; not relevant in the Stoffenmanager
	Exposure frequency	4 - 5 days/week StoffenManager
Human factors not influenced by risk management	dermal exposure	Both hands (820 cm2)
Other given operational conditions affecting workers exposure	Indoor use	
	Room volume	100 - 1000 m ³

Risk management measures

Technical conditions and measures at process level to prevent release	Segregation :Worker is not within one meter of the source	Use of a long spray boom is necessary
Technical conditions and measures to control dispersion from the source towards the worker	Spraying	Level or downward
	Direction of airflow that comes from the source	away from the worker
	Distance of worker from the source	more than one meter
Organisational measures to prevent /limit releases, dispersion and exposure	Inspect and clean equipment regularly.	Not required
	Regular cleaning of work area	Not required
Conditions and measures related to personal protection, hygiene and health evaluation	Wear suitable gloves.	yes. Effectiveness : 90%
	Respiratory protection	Not required

2.1.5 Contributing scenario controlling worker exposure (PROC13)

PROC13	Treatment of articles by dipping and pouring
--------	--

Product characteristics

Physical form	liquid
Concentration of the Substance in Mixture/Article	Covers percentage substance in the product up to 100 % (unless stated differently).
Vapour pressure	169,27 hPa

Operational conditions

Amount used	not relevant	
Frequency and duration of use	Exposure duration	> 4 hours/day
	Exposure frequency	≤ 240 days/year
Human factors not influenced by risk management	dermal exposure	Palms of both hands (480 cm2)
Other given operational conditions affecting workers exposure	Indoor use	

Risk management measures

Technical conditions and measures at process level to prevent release	none	
Technical conditions and measures to control dispersion from the source towards the worker	with local exhaust ventilation,Effectiveness : 80%	
Organisational measures to prevent /limit releases, dispersion and exposure	not relevant	
Conditions and measures related to personal protection, hygiene and health evaluation	Respiratory protection	Not required

2.2 Contributing scenario controlling environmental exposure (ERC8a, ERC8d)


Not applicable	
ERC8a	Wide dispersive indoor use of processing aids in open systems
ERC8d	Wide dispersive outdoor use of processing aids in open systems

Product characteristics

No additional information

Operational conditions

No additional information

	SAFETY DATA SHEET	Page : 41 / 58
		Revision nr : 1.0
	Methanol	Issue date : 21/09/2018
		Supersedes :

Risk management measures

No additional information

3. Exposure estimation and reference to its source

3.1. Health

Information for contributing exposure scenario	
2.1.1	The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated, ECETOC TRA v2.0 Worker
2.1.2	The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated, (ECETOC TRA v2.0 Worker; modified version)
2.1.3	The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated, (ECETOC TRA v2.0 Worker; modified version)
2.1.4	Used Stoffenmanager model (v3.5), RISKOFDERM v2.1
2.1.5	The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated, ECETOC TRA v2.0 Worker

3.2. Environment

Information for contributing exposure scenario	
2.2	Not applicable


4. Guidance to Downstream User to evaluate whether he works inside the boundaries set by the ES

4.1. Health

Guidance - Health	Predicted exposures are not expected to exceed the DN(M)EL when the Risk Management Measures/Operational Conditions outlined in Section 2 are implemented, Where other Risk Management Measures/Operational Conditions are adopted, then users should ensure that risks are managed to at least equivalent levels.
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4.2. Environment

Guidance - Environment	Not required
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	SAFETY DATA SHEET	Page : 42 / 58
		Revision nr : 1.0
	Methanol	Issue date : 21/09/2018
		Supersedes :

1. Exposure scenario 08

Use as laboratory reagent

ES Ref.: 08
ES Type: Worker

Use descriptors	PROC10, PROC15 SU3 ERC4
Processes, tasks activities covered	Use of the substance within laboratory settings, including material transfers and equipment cleaning. Industrial use
Assessment method	see section 3 of this exposure scenario.

2. Operational conditions and risk management measures

2.1.1 Contributing scenario controlling worker exposure (PROC10)

PROC10	Roller application or brushing of adhesive and other coating.
--------	---

Product characteristics

Physical form	liquid
Concentration of the Substance in Mixture/Article	Covers concentrations up to 80%, Unless otherwise stated.
Vapour pressure	169,27 hPa

Operational conditions

Amount used	not relevant	
Frequency and duration of use	Exposure duration	> 4 hours/day
	Exposure frequency	≤ 240 days/year
Human factors not influenced by risk management	dermal exposure	Both hands (960 cm ²)
Other given operational conditions affecting workers exposure	Indoor use	

Risk management measures

Technical conditions and measures at process level to prevent release	none	
Technical conditions and measures to control dispersion from the source towards the worker	with local exhaust ventilation, Effectiveness : 90%	
Organisational measures to prevent /limit releases, dispersion and exposure	not relevant	
Conditions and measures related to personal protection, hygiene and health evaluation	Respiratory protection	Not required

2.1.2 Contributing scenario controlling worker exposure (PROC15)


PROC15	Use as laboratory reagent
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Product characteristics

Physical form	liquid
Concentration of the Substance in Mixture/Article	Covers percentage substance in the product up to 100 % (unless stated differently).
Vapour pressure	169,27 hPa

Operational conditions

Amount used	not relevant	
Frequency and duration of use	Exposure duration	> 4 hours/day
	Exposure frequency	≤ 240 days/year
Human factors not influenced by risk management	dermal exposure	Palm of one hand (240cm ²)
Other given operational conditions affecting workers exposure	Indoor use	

	SAFETY DATA SHEET	Page : 43 / 58
		Revision nr : 1.0
	Methanol	Issue date : 21/09/2018
		Supersedes :

Risk management measures

Technical conditions and measures at process level to prevent release	none	
Technical conditions and measures to control dispersion from the source towards the worker	with local exhaust ventilation, Effectiveness : 90%	
Organisational measures to prevent /limit releases, dispersion and exposure	not relevant	
Conditions and measures related to personal protection, hygiene and health evaluation	Respiratory protection	Not required

2.2 Contributing scenario controlling environmental exposure (ERC4)

Not applicable	
ERC4	Industrial use of processing aids in processes and products, not becoming part of articles

Product characteristics

No additional information

Operational conditions

No additional information

Risk management measures

No additional information

3. Exposure estimation and reference to its source

3.1. Health

Information for contributing exposure scenario	
2.1.1	The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated, (ECETOC TRA v2.0 Worker; modified version)
2.1.2	The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated, (ECETOC TRA v2.0 Worker; modified version)

3.2. Environment

Information for contributing exposure scenario	
2.2	Not applicable


4. Guidance to Downstream User to evaluate whether he works inside the boundaries set by the ES

4.1. Health

Guidance - Health	Predicted exposures are not expected to exceed the DN(M)EL when the Risk Management Measures/Operational Conditions outlined in Section 2 are implemented, Where other Risk Management Measures/Operational Conditions are adopted, then users should ensure that risks are managed to at least equivalent levels.
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4.2. Environment

Guidance - Environment	Not required
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	SAFETY DATA SHEET	Page : 44 / 58
		Revision nr : 1.0
	Methanol	Issue date : 21/09/2018
		Supersedes :

1. Exposure scenario 09

Use as laboratory reagent

ES Ref.: 09
ES Type: Worker

Use descriptors	PROC10, PROC15 SU22 ERC8a
Processes, tasks activities covered	Use of small quantities within laboratory settings, including material transfers and equipment cleaning. Professional use
Assessment method	see section 3 of this exposure scenario.

2. Operational conditions and risk management measures

2.1.1 Contributing scenario controlling worker exposure (PROC10)

PROC10	Roller application or brushing of adhesive and other coating.
--------	---

Product characteristics

Physical form	liquid
Concentration of the Substance in Mixture/Article	Covers concentrations up to 5%, Unless otherwise stated.
Vapour pressure	169,27 hPa

Operational conditions

Amount used	not relevant	
Frequency and duration of use	Exposure duration	> 4 hours/day
	Exposure frequency	≤ 240 days/year
Human factors not influenced by risk management	dermal exposure	Both hands (960 cm ²)
Other given operational conditions affecting workers exposure	Indoor use	

Risk management measures

Technical conditions and measures at process level to prevent release	none	
Technical conditions and measures to control dispersion from the source towards the worker	without local exhaust ventilation	
Organisational measures to prevent /limit releases, dispersion and exposure	not relevant	
Conditions and measures related to personal protection, hygiene and health evaluation	Respiratory protection	Not required

2.1.2 Contributing scenario controlling worker exposure (PROC15)


PROC15	Use as laboratory reagent
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Product characteristics

Physical form	liquid
Concentration of the Substance in Mixture/Article	Covers percentage substance in the product up to 100 % (unless stated differently).
Vapour pressure	169,27 hPa

Operational conditions

Amount used	not relevant	
Frequency and duration of use	Exposure duration	> 4 hours/day
	Exposure frequency	≤ 240 days/year
Human factors not influenced by risk management	dermal exposure	Palm of one hand (240cm ²)
Other given operational conditions affecting workers exposure	Indoor use	

	SAFETY DATA SHEET	Page : 45 / 58
		Revision nr : 1.0
	Methanol	Issue date : 21/09/2018
		Supersedes :

Risk management measures

Technical conditions and measures at process level to prevent release	none	
Technical conditions and measures to control dispersion from the source towards the worker	with local exhaust ventilation, Effectiveness : 80%	
Organisational measures to prevent /limit releases, dispersion and exposure	not relevant	
Conditions and measures related to personal protection, hygiene and health evaluation	Respiratory protection	Not required

2.2 Contributing scenario controlling environmental exposure (ERC8a)

Not applicable	
ERC8a	Wide dispersive indoor use of processing aids in open systems

Product characteristics

No additional information

Operational conditions

No additional information

Risk management measures

No additional information

3. Exposure estimation and reference to its source

3.1. Health

Information for contributing exposure scenario	
2.1.1	The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated, (ECETOC TRA v2.0 Worker; modified version)
2.1.2	The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated, (ECETOC TRA v2.0 Worker; modified version)

3.2. Environment

Information for contributing exposure scenario	
2.2	Not applicable


4. Guidance to Downstream User to evaluate whether he works inside the boundaries set by the ES

4.1. Health

Guidance - Health	Predicted exposures are not expected to exceed the DN(M)EL when the Risk Management Measures/Operational Conditions outlined in Section 2 are implemented, Where other Risk Management Measures/Operational Conditions are adopted, then users should ensure that risks are managed to at least equivalent levels.
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4.2. Environment

Guidance - Environment	Not required
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	SAFETY DATA SHEET	Page : 46 / 58
		Revision nr : 1.0
	Methanol	Issue date : 21/09/2018
		Supersedes :

1. Exposure scenario 10

Industrial use as wastewater treatment chemical

ES Ref.: 10
ES Type: Worker

Use descriptors	PROC2 SU3 ERC9b
Processes, tasks activities covered	Waste water treatment Industrial use
Assessment method	see section 3 of this exposure scenario.

2. Operational conditions and risk management measures

2.1 Contributing scenario controlling worker exposure (PROC2)

PROC2	Use in closed, continuous process with occasional controlled exposure
-------	---

Product characteristics

Physical form	liquid
Concentration of the Substance in Mixture/Article	Covers percentage substance in the product up to 100 % (unless stated differently).
Vapour pressure	169,27 hPa

Operational conditions

Amount used	not relevant	
Frequency and duration of use	Exposure duration	> 4 hours/day
	Exposure frequency	≤ 240 days/year
Human factors not influenced by risk management	dermal exposure	Palms of both hands (480 cm ²)
Other given operational conditions affecting workers exposure	Indoor use	

Risk management measures

Technical conditions and measures at process level to prevent release	none	
Technical conditions and measures to control dispersion from the source towards the worker	with local exhaust ventilation, Effectiveness : 90%	
Organisational measures to prevent /limit releases, dispersion and exposure	not relevant	
Conditions and measures related to personal protection, hygiene and health evaluation	Respiratory protection	Not required

2.2 Contributing scenario controlling environmental exposure (ERC9b)

Not applicable	
ERC9b	Wide dispersive outdoor use of substances in closed systems

Product characteristics

No additional information

Operational conditions

No additional information


Risk management measures

No additional information

3. Exposure estimation and reference to its source

3.1. Health

Information for contributing exposure scenario	
2.1	The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated,(ECETOC TRA

	SAFETY DATA SHEET	Page : 47 / 58
		Revision nr : 1.0
	Methanol	Issue date : 21/09/2018
		Supersedes :

	v2.0 Worker; modified version)
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3.2. Environment

Information for contributing exposure scenario	
2.2	Not applicable


4. Guidance to Downstream User to evaluate whether he works inside the boundaries set by the ES

4.1. Health

Guidance - Health	Predicted exposures are not expected to exceed the DN(M)EL when the Risk Management Measures/Operational Conditions outlined in Section 2 are implemented,Where other Risk Management Measures/Operational Conditions are adopted, then users should ensure that risks are managed to at least equivalent levels.
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4.2. Environment

Guidance - Environment	Not required
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	SAFETY DATA SHEET	Page : 48 / 58
		Revision nr : 1.0
	Methanol	Issue date : 21/09/2018
		Supersedes :

1. Exposure scenario 11

Use in oil and gas field drilling and production operations

ES Ref.: 11
ES Type: Worker

Use descriptors	PROC4, PROC5, PROC8a, PROC8b SU22 ERC9b
Processes, tasks activities covered	Oil field well drilling and production operations (including drilling muds and well cleaning) including material transfers, on-site formulation, well head operations, shaker room activities and related maintenance. Professional use
Assessment method	see section 3 of this exposure scenario.

2. Operational conditions and risk management measures

2.1.1 Contributing scenario controlling worker exposure (PROC4)

PROC4	Use in batch and other process (synthesis) where opportunity for exposure arises
-------	--

Product characteristics

Physical form	liquid
Concentration of the Substance in Mixture/Article	Covers percentage substance in the product up to 100 % (unless stated differently).
Vapour pressure	169,27 hPa

Operational conditions

Amount used	not relevant	
Frequency and duration of use	Exposure duration	1 - 4 hours/day
	Exposure frequency	≤ 240 days/year
Human factors not influenced by risk management	dermal exposure	Palms of both hands (480 cm ²)
Other given operational conditions affecting workers exposure	Indoor use	

Risk management measures

Technical conditions and measures at process level to prevent release	none	
Technical conditions and measures to control dispersion from the source towards the worker	with local exhaust ventilation, Effectiveness : 80%	
Organisational measures to prevent /limit releases, dispersion and exposure	not relevant	
Conditions and measures related to personal protection, hygiene and health evaluation	Respiratory protection	Not required

2.1.2 Contributing scenario controlling worker exposure (PROC5)


PROC5	Mixing or blending in batch processes for formulation of preparations and articles (multistage and/or significant contact)
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Product characteristics

Physical form	liquid
Concentration of the Substance in Mixture/Article	Covers concentrations up to 5%, Unless otherwise stated.
Vapour pressure	169,27 hPa

Operational conditions

Amount used	not relevant	
Frequency and duration of use	Exposure duration	> 4 hours/day
	Exposure frequency	≤ 240 days/year
Human factors not influenced by risk management	dermal exposure	Palms of both hands (480 cm ²)

	SAFETY DATA SHEET	Page : 49 / 58
		Revision nr : 1.0
	Methanol	Issue date : 21/09/2018
		Supersedes :

Other given operational conditions affecting workers exposure	Indoor use	
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Risk management measures

Technical conditions and measures at process level to prevent release	none	
Technical conditions and measures to control dispersion from the source towards the worker	without local exhaust ventilation	
Organisational measures to prevent /limit releases, dispersion and exposure	not relevant	
Conditions and measures related to personal protection, hygiene and health evaluation	Respiratory protection	Not required

2.1.3 Contributing scenario controlling worker exposure (PROC8a, PROC8b)

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

Product characteristics

Physical form	liquid
Concentration of the Substance in Mixture/Article	Covers concentrations up to 5%, Unless otherwise stated.
Vapour pressure	169,27 hPa

Operational conditions

Amount used	not relevant	
Frequency and duration of use	Exposure duration	> 4 hours/day
	Exposure frequency	≤ 240 days/year
Human factors not influenced by risk management	dermal exposure	Palms of both hands (480 cm ²) (PROC 8b)
	dermal exposure	Both hands (960 cm ²) (PROC 8a)
Other given operational conditions affecting workers exposure	Indoor use	

Risk management measures

Technical conditions and measures at process level to prevent release	none	
Technical conditions and measures to control dispersion from the source towards the worker	without local exhaust ventilation	
Organisational measures to prevent /limit releases, dispersion and exposure	not relevant	
Conditions and measures related to personal protection, hygiene and health evaluation	Respiratory protection	Not required

2.2 Contributing scenario controlling environmental exposure (ERC9b)

Not applicable	
ERC9b	Wide dispersive outdoor use of substances in closed systems

Product characteristics

No additional information

Operational conditions

No additional information


Risk management measures

No additional information

3. Exposure estimation and reference to its source

3.1. Health

Information for contributing exposure scenario
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	SAFETY DATA SHEET	Page : 50 / 58
		Revision nr : 1.0
	Methanol	Issue date : 21/09/2018
		Supersedes :

2.1.1	The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated,(ECETOC TRA v2.0 Worker; modified version)
2.1.2	The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated,(ECETOC TRA v2.0 Worker; modified version)
2.1.3	The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated,(ECETOC TRA v2.0 Worker; modified version)

3.2. Environment

Information for contributing exposure scenario	
2.2	Not applicable


4. Guidance to Downstream User to evaluate whether he works inside the boundaries set by the ES

4.1. Health

Guidance - Health	Predicted exposures are not expected to exceed the DN(M)EL when the Risk Management Measures/Operational Conditions outlined in Section 2 are implemented,Where other Risk Management Measures/Operational Conditions are adopted, then users should ensure that risks are managed to at least equivalent levels.
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4.2. Environment

Guidance - Environment	Not required
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	SAFETY DATA SHEET	Page : 51 / 58
		Revision nr : 1.0
	Methanol	Issue date : 21/09/2018
		Supersedes :

1. Exposure scenario 12

Consumer use of cleaning agents and de-icers (liquid products)

ES Ref.: 12
ES Type: Consumer

Use descriptors	PC4, PC35 SU21 ERC8a, ERC8d
Processes, tasks activities covered	Use in cleaning agents De-icing applications no spraying Consumer use
Assessment method	see section 3 of this exposure scenario.

2. Operational conditions and risk management measures

2.1 Contributing scenario consumer end-use (PC4, PC35)

PC4	Anti-Freeze and De-icing products
PC35	Washing and cleaning products (including solvent based products)

Product characteristics

Physical form	liquid
Concentration of the Substance in Mixture/Article	Covers concentrations up to 2.5%, Unless otherwise stated.
Vapour pressure	169 hPa
Other product characteristics	Molecular weight (g/mol) 18 (ConsExpo default), Mass transfer rate 0.413 m/min (Thibodaux's method)

Operational conditions

Amount used	Amount used per event	100 g
Frequency and duration of use	Exposure frequency	104 Times per year: (ConsExpo Default)
	Exposure duration	240 minutes (ConsExpo Default)
	Application duration	20 minutes (ConsExpo Default)
Human factors not influenced by risk management	dermal exposure	1900 cm ²
	Inhalation Rate (L/min)	24,1
Other given operational conditions affecting consumers exposure	Room Volume	58 m ³
	Ventilation rate per hour	0,5
	Release area	5 m ²

Risk management measures

Conditions and measures related to information and behavioural advice to consumers	none	
Conditions and measures related to personal protection, hygiene and health evaluation	none	

2.2 Contributing scenario controlling environmental exposure (ERC8a, ERC8d)


Not applicable	
ERC8a	Wide dispersive indoor use of processing aids in open systems
ERC8d	Wide dispersive outdoor use of processing aids in open systems

Product characteristics

No additional information

Operational conditions

No additional information

	SAFETY DATA SHEET	Page : 52 / 58
		Revision nr : 1.0
	Methanol	Issue date : 21/09/2018
		Supersedes :

Risk management measures

No additional information

3. Exposure estimation and reference to its source

3.1. Health

Information for contributing exposure scenario

2.1	ConsExpo v4.1
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3.2. Environment

Information for contributing exposure scenario

2.2	Not applicable
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4. Guidance to Downstream User to evaluate whether he works inside the boundaries set by the ES

4.1. Health


Guidance - Health

Predicted exposures are not expected to exceed the DN(M)EL when the Risk Management Measures/Operational Conditions outlined in Section 2 are implemented, Where other Risk Management Measures/Operational Conditions are adopted, then users should ensure that risks are managed to at least equivalent levels.

4.2. Environment

Guidance - Environment

Not applicable

	SAFETY DATA SHEET	Page : 53 / 58
		Revision nr : 1.0
	Methanol	Issue date : 21/09/2018
		Supersedes :

1. Exposure scenario 13

Consumer use of cleaning agents and de-icers (liquid products)

ES Ref.: 13
ES Type: Consumer

Use descriptors	PC4, PC35 SU21 ERC8a, ERC8d
Processes, tasks activities covered	Use in cleaning agents De-icing applications Spraying Consumer use
Assessment method	see section 3 of this exposure scenario.

2. Operational conditions and risk management measures

2.1 Contributing scenario consumer end-use (PC4, PC35)

PC4	Anti-Freeze and De-icing products
PC35	Washing and cleaning products (including solvent based products)

Product characteristics

Physical form	liquid
Concentration of the Substance in Mixture/Article	Covers concentrations up to 5%, Unless otherwise stated.
Vapour pressure	169 hPa
Other product characteristics	Molecular weight (g/mol) 22 (ConsExpo default), Mass transfer rate 0.413 m/min (Thibodaux's method)

Operational conditions


Amount used	Amount used per event	16,2 g
Frequency and duration of use	Exposure frequency	365 Times per year: (ConsExpo Default)
	Exposure duration	60 minutes (ConsExpo Default)
	Application duration	10 minutes (ConsExpo Default)
	Spraying, Exposure duration	0,41 minutes Used model : spray application
Human factors not influenced by risk management	dermal exposure, Spraying	Both hands (960 cm ²)
	dermal exposure, Cleaning	215 cm ² Palm of one hand
	Inhalation Rate (L/min)	24,1
Other given operational conditions affecting consumers exposure	Room Volume	15 m ³
	Room Height	2,5 m
	Ventilation rate per hour	2,5 l
	Release area	1,71 m ²

Risk management measures

Conditions and measures related to information and behavioural advice to consumers	Spraying away from exposed person
Conditions and measures related to personal protection, hygiene and health evaluation	none

2.2 Contributing scenario controlling environmental exposure (ERC8a, ERC8d)

Not applicable	
ERC8a	Wide dispersive indoor use of processing aids in open systems
ERC8d	Wide dispersive outdoor use of processing aids in open systems

	SAFETY DATA SHEET	Page : 54 / 58
		Revision nr : 1.0
	Methanol	Issue date : 21/09/2018
		Supersedes :

Product characteristics

No additional information

Operational conditions

No additional information

Risk management measures

No additional information

3. Exposure estimation and reference to its source

3.1. Health

Information for contributing exposure scenario	
2.1	ConsExpo v4.1

3.2. Environment

Information for contributing exposure scenario	
2.2	Not applicable


4. Guidance to Downstream User to evaluate whether he works inside the boundaries set by the ES

4.1. Health

Guidance - Health	Predicted exposures are not expected to exceed the DN(M)EL when the Risk Management Measures/Operational Conditions outlined in Section 2 are implemented, Where other Risk Management Measures/Operational Conditions are adopted, then users should ensure that risks are managed to at least equivalent levels.
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4.2. Environment

Guidance - Environment	Not applicable
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	SAFETY DATA SHEET	Page : 55 / 58
		Revision nr : 1.0
	Methanol	Issue date : 21/09/2018
		Supersedes :

1. Exposure scenario 14a

**Consumer use of fuels indoors
(Domestic/hobby use e.g in model engines,
fuel cells, fondue sets)**

ES Ref.: 14a ES Type: Consumer	
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Use descriptors	PC13 SU21 ERC8b
Processes, tasks activities covered	Consumer use of fuels indoors (Domestic/hobby use e.g in model engines, fuel cells, fondue sets) Consumer use
Assessment method	see section 3 of this exposure scenario.

2. Operational conditions and risk management measures

2.1 Contributing scenario consumer end-use (PC13)

PC13	Fuels
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Product characteristics

Physical form	liquid
Concentration of the Substance in Mixture/Article	Covers concentrations up to 80%, Unless otherwise stated.
Vapour pressure	169 hPa
Other product characteristics	Molecular weight (g/mol) 100, (estimated), Mass transfer rate 0.413 (Thibodaux's method)

Operational conditions

Amount used	Amount used per event,(inhalative)	800 g
Frequency and duration of use	Exposure frequency	2 per week
	Exposure duration	10 minutes
	Application duration	10 minutes (ConsExpo Default)
Human factors not influenced by risk management	Inhalation Rate	34,7 m ³ /d
	Release area	2 cm ²
Other given operational conditions affecting consumers exposure	Room Volume	20 m ³
	Ventilation rate per hour	0,5 l
	Release area	5 m ²

Risk management measures

Conditions and measures related to information and behavioural advice to consumers	none	
Conditions and measures related to personal protection, hygiene and health evaluation	none	

2.2 Contributing scenario controlling environmental exposure (ERC8b)

Not applicable	
ERC8b	Wide dispersive indoor use of reactive substances in open systems

Product characteristics

No additional information


Operational conditions

No additional information

Risk management measures

No additional information

3. Exposure estimation and reference to its source

	SAFETY DATA SHEET	Page : 56 / 58
		Revision nr : 1.0
	Methanol	Issue date : 21/09/2018
		Supersedes :

3.1. Health

Information for contributing exposure scenario	
2.1	ConsExpo v4.1

3.2. Environment

Information for contributing exposure scenario	
2.2	Not applicable

4. Guidance to Downstream User to evaluate whether he works inside the boundaries set by the ES

4.1. Health


Guidance - Health	Predicted exposures are not expected to exceed the DN(M)EL when the Risk Management Measures/Operational Conditions outlined in Section 2 are implemented,Where other Risk Management Measures/Operational Conditions are adopted, then users should ensure that risks are managed to at least equivalent levels.
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4.2. Environment

Guidance - Environment	Not applicable
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Additional good practice advice beyond the REACH CSA

Additional good practice advice	Avoid contact with skin,In case of contact, immediately flush skin with plenty of water,Keep container tightly closed.
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	SAFETY DATA SHEET	Page : 57 / 58
		Revision nr : 1.0
	Methanol	Issue date : 21/09/2018
		Supersedes :

1. Exposure scenario 14b

Consumer use of fuels outdoors (gasoline additive)

ES Ref.: 14b
ES Type: Consumer

Use descriptors	PROC16 SU21 ERC8e
Processes, tasks activities covered	Filling up cars and other vehicles at petrol stations Consumer use
Assessment method	see section 3 of this exposure scenario.

2. Operational conditions and risk management measures

2.1 Contributing scenario consumer end-use (PC13)

PC13	Fuels
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Product characteristics

Physical form	liquid
Vapour pressure	169 hPa

Operational conditions

Amount used	not relevant	(ECETOC TRA)
Frequency and duration of use	Exposure duration	< 15 hours/day
	Exposure frequency	≤ 240 days/year
Human factors not influenced by risk management	dermal exposure	Palm of one hand (240cm ²)
Other given operational conditions affecting consumers exposure	Outdoor use.	
	Professional uses	

Risk management measures

Conditions and measures related to information and behavioural advice to consumers	none	
Conditions and measures related to personal protection, hygiene and health evaluation	none	

2.2 Contributing scenario controlling environmental exposure (ERC8b)

Not applicable	
ERC8b	Wide dispersive indoor use of reactive substances in open systems

Product characteristics

No additional information

Operational conditions

No additional information

Risk management measures

No additional information


3. Exposure estimation and reference to its source

3.1. Health

Information for contributing exposure scenario	
2.1	The ECETOC TRA tool has been used to estimate consumer exposures unless otherwise indicated, ECETOC TRA v2.0 Worker; modified version, (ConsExpo v4.1 = unsuitable)

3.2. Environment

Information for contributing exposure scenario	
2.2	Not applicable

	SAFETY DATA SHEET	Page : 58 / 58
		Revision nr : 1.0
	Methanol	Issue date : 21/09/2018
		Supersedes :

4. Guidance to Downstream User to evaluate whether he works inside the boundaries set by the ES

4.1. Health

Guidance - Health	Predicted exposures are not expected to exceed the DN(M)EL when the Risk Management Measures/Operational Conditions outlined in Section 2 are implemented, Where other Risk Management Measures/Operational Conditions are adopted, then users should ensure that risks are managed to at least equivalent levels.
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4.2. Environment

Guidance - Environment	Not applicable
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Additional good practice advice beyond the REACH CSA

Additional good practice advice	Avoid contact with skin, In case of contact, immediately flush skin with plenty of water, Keep container tightly closed.
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