

Creation Date 27-Apr-2009

Revision Date 11-Feb-2019

Revision Number 10

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

1.1. Product identification

Product Description: **Methanol**
Cat No. : **A456-1, A456-212, A456-4, A456-500**
Synonyms Methyl alcohol
CAS-No 67-56-1
EC-No. 200-659-6
Molecular Formula C H4 O
Reach Registration Number 01-2119433307-44-0232

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

Recommended Use Laboratory chemicals.
Sector of use SU3 - Industrial uses: Uses of substances as such or in preparations at industrial sites
Product category PC21 - Laboratory chemicals
Process categories PROC15 - Use as a laboratory reagent
Environmental release category ERC6a - Industrial use resulting in manufacture of another substance (use of intermediates)
Uses advised against No Information available

1.3. Details of the supplier of the safety data sheet

Company **UK entity/business name**
 Fisher Scientific UK
 Bishop Meadow Road, Loughborough,
 Leicestershire LE11 5RG, United Kingdom

EU entity/business name
 Acros Organics BVBA
 Janssen Pharmaceuticaaan 3a
 2440 Geel, Belgium

E-mail address begel.sdsdesk@thermofisher.com

1.4. Emergency telephone number

Tel: 01509 231166
 Chemtrec US: (800) 424-9300
 Chemtrec EU: 001 (202) 483-7616

SECTION 2: HAZARDS IDENTIFICATION

2.1. Classification of the substance or mixture

CLP Classification - Regulation (EC) No 1272/2008

Physical hazards

Flammable liquids

Category 2 (H225)

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Health hazards

Acute oral toxicity
Acute dermal toxicity
Acute Inhalation Toxicity - Vapors
Specific target organ toxicity - (single exposure)

Category 3 (H301)
Category 3 (H311)
Category 3 (H331)
Category 1 (H370)

Environmental hazards

Based on available data, the classification criteria are not met

2.2. Label elements



Signal Word

Danger

Hazard Statements

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

Precautionary Statements

P210 - Keep away from heat/sparks/open flames/hot surfaces. - No smoking
P280 - Wear protective gloves/ protective clothing/ eye protection/ face protection
P301 + P310 - IF SWALLOWED: Immediately call a POISON CENTER or doctor/ physician
P302 + P350 - IF ON SKIN: Gently wash with plenty of soap and water
P304 + P340 - IF INHALED: Remove to fresh air and keep at rest in a position comfortable for breathing
P240 - Ground/Bond container and receiving equipment

2.3. Other hazards

Substance is not considered to be persistent, bioaccumulative and toxic (PBT). Substance is not considered to be very persistent and very bioaccumulative (vPvB).

SECTION 3: COMPOSITION/INFORMATION ON INGREDIENTS

3.1. Substances

Component	CAS-No	EC-No.	Weight %	CLP Classification - Regulation (EC) No 1272/2008
Methyl alcohol	67-56-1	200-659-6	>95	Flam. Liq. 2 (H225) Acute Tox. 3 (H301)

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				Acute Tox. 3 (H311) Acute Tox. 3 (H331) STOT SE 1 (H370)
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Full text of Hazard Statements: see section 16

SECTION 4: FIRST AID MEASURES

4.1. Description of first aid measures

General Advice	Immediate medical attention is required. Show this safety data sheet to the doctor in attendance.
Eye Contact	Rinse immediately with plenty of water, also under the eyelids, for at least 15 minutes. Immediate medical attention is required.
Skin Contact	Wash off immediately with plenty of water for at least 15 minutes. Immediate medical attention is required.
Ingestion	Do not induce vomiting. Call a physician or Poison Control Center immediately.
Inhalation	Move to fresh air. If breathing is difficult, give oxygen. Do not use mouth-to-mouth method if victim ingested or inhaled the substance; give artificial respiration with the aid of a pocket mask equipped with a one-way valve or other proper respiratory medical device. Immediate medical attention is required.
Self-Protection of the First Aider	Ensure that medical personnel are aware of the material(s) involved, take precautions to protect themselves and prevent spread of contamination. Use personal protective equipment. Avoid contact with skin, eyes and clothing. Remove all sources of ignition. No artificial respiration, mouth-to-mouth or mouth to nose. Use suitable instruments/apparatus. Avoid contact with skin.

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

Breathing difficulties. May cause blindness: Inhalation of high vapor concentrations may cause symptoms like headache, dizziness, tiredness, nausea and vomiting

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

Notes to Physician Treat symptomatically. Symptoms may be delayed.

SECTION 5: FIREFIGHTING MEASURES

5.1. Extinguishing media

Suitable Extinguishing Media

Use water spray, alcohol-resistant foam, dry chemical or carbon dioxide. Cool closed containers exposed to fire with water spray.

Extinguishing media which must not be used for safety reasons

Do not use a solid water stream as it may scatter and spread fire.

5.2. Special hazards arising from the substance or mixture

Flammable. Risk of ignition. Vapors may form explosive mixtures with air. Vapors may travel to source of ignition and flash back. Containers may explode when heated. Vapors may form explosive mixtures with air.

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Hazardous Combustion Products

Carbon monoxide (CO), Formaldehyde.

5.3. Advice for firefighters

As in any fire, wear self-contained breathing apparatus pressure-demand, MSHA/NIOSH (approved or equivalent) and full protective gear. Thermal decomposition can lead to release of irritating gases and vapors.

SECTION 6: ACCIDENTAL RELEASE MEASURES

6.1. Personal precautions, protective equipment and emergency procedures

Evacuate personnel to safe areas. Keep people away from and upwind of spill/leak. Use personal protective equipment. Ensure adequate ventilation. Remove all sources of ignition. Take precautionary measures against static discharges.

6.2. Environmental precautions

Should not be released into the environment. See Section 12 for additional ecological information.

6.3. Methods and material for containment and cleaning up

Soak up with inert absorbent material. Keep in suitable, closed containers for disposal. Remove all sources of ignition. Use spark-proof tools and explosion-proof equipment.

6.4. Reference to other sections

Refer to protective measures listed in Sections 8 and 13.

SECTION 7: HANDLING AND STORAGE

7.1. Precautions for safe handling

Wear personal protective equipment. Do not breathe vapors or spray mist. Do not get in eyes, on skin, or on clothing. Use only under a chemical fume hood. Do not ingest. Keep away from open flames, hot surfaces and sources of ignition. Use only non-sparking tools. To avoid ignition of vapors by static electricity discharge, all metal parts of the equipment must be grounded. Take precautionary measures against static discharges.

Hygiene Measures

When using, do not eat, drink or smoke. Provide regular cleaning of equipment, work area and clothing.

7.2. Conditions for safe storage, including any incompatibilities

Keep container tightly closed in a dry and well-ventilated place. Keep away from open flames, hot surfaces and sources of ignition. Flammables area.

7.3. Specific end use(s)

Use in laboratories

SECTION 8: EXPOSURE CONTROLS/PERSONAL PROTECTION

8.1. Control parameters

Exposure limits

List source(s): **EU** - Commission Directive 2006/15/EC of 7 February 2006 establishing a second list of indicative occupational exposure limit values in implementation of Council Directive 98/24/EC and amending Directives 91/322/EEC and 2000/39/EC on

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the protection of the health and safety of workers from the risks related to chemical agents at work. **UK** - EH40/2005 Containing the workplace exposure limits (WELs) for use with the Control of Substances Hazardous to Health Regulations (COSHH) 2002 (as amended). Updated by September 2006 official press release and October 2007 Supplement. **IRE** - 2010 Code of Practice for the Safety, Health and Welfare at Work (Chemical Agents) Regulations 2001. Published by the Health and Safety Authority.

Component	The United Kingdom	European Union	Ireland
Methyl alcohol	WEL - TWA: 200 ppm TWA; 266 mg/m ³ TWA WEL - STEL: 250 ppm STEL; 333 mg/m ³ STEL	TWA: 200 ppm 8 hr TWA: 260 mg/m ³ 8 hr Skin	TWA: 200 ppm 8 hr. TWA: 260 mg/m ³ 8 hr. STEL: 600 ppm 15 min STEL: 780 mg/m ³ 15 min Skin

Biological limit values

List source(s):

Monitoring methods

BS EN 14042:2003 Title Identifier: Workplace atmospheres. Guide for the application and use of procedures for the assessment of exposure to chemical and biological agents.

MDHS70 General methods for sampling airborne gases and vapours

MDHS 88 Volatile organic compounds in air. Laboratory method using diffusive samplers, solvent desorption and gas chromatography

MDHS 96 Volatile organic compounds in air - Laboratory method using pumped solid sorbent tubes, solvent desorption and gas chromatography

Derived No Effect Level (DNEL) See table for values

Route of exposure	Acute effects (local)	Acute effects (systemic)	Chronic effects (local)	Chronic effects (systemic)
Oral		40 mg/kg bw/day		40 mg/kg bw/day
Dermal		260 mg/m ³	260 mg/m ³	260 mg/m ³
Inhalation	260 mg/m ³			

Predicted No Effect Concentration (PNEC) See values below.

Fresh water	154 mg/l
Fresh water sediment	570.4 mg/kg
Marine water	15.4 mg/l
Microorganisms in sewage treatment	100 mg/l
Soil (Agriculture)	23.5 mg.kg

8.2. Exposure controls

Engineering Measures

Use only under a chemical fume hood. Use explosion-proof electrical/ventilating/lighting/equipment. Ensure that eyewash stations and safety showers are close to the workstation location.

Wherever possible, engineering control measures such as the isolation or enclosure of the process, the introduction of process or equipment changes to minimise release or contact, and the use of properly designed ventilation systems, should be adopted to control hazardous materials at source

Personal protective equipment

Eye Protection Tightly fitting safety goggles (European standard - EN 166)

Hand Protection Protective gloves

Glove material	Breakthrough time	Glove thickness	EU standard	Glove comments
Butyl rubber	> 480 minutes	0.35 mm	Level 6	As tested under EN374-3 Determination of
Viton (R)	> 480 minutes	0.70 mm	EN 374	Resistance to Permeation by Chemicals
Neoprene gloves	< 60 minutes	0.45 mm		

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Nitrile rubber	< 30 minutes	0.38 mm
Skin and body protection	Long sleeved clothing	

Inspect gloves before use.

Please observe the instructions regarding permeability and breakthrough time which are provided by the supplier of the gloves. (Refer to manufacturer/supplier for information)

Ensure gloves are suitable for the task: Chemical compatibility, Dexterity, Operational conditions, User susceptibility, e.g. sensitisation effects, also take into consideration the specific local conditions under which the product is used, such as the danger of cuts, abrasion.

Remove gloves with care avoiding skin contamination.

Respiratory Protection

When workers are facing concentrations above the exposure limit they must use appropriate certified respirators.

To protect the wearer, respiratory protective equipment must be the correct fit and be used and maintained properly

Large scale/emergency use

Use a NIOSH/MSHA or European Standard EN 136 approved respirator if exposure limits are exceeded or if irritation or other symptoms are experienced

Recommended Filter type: low boiling organic solvent Type AX Brown conforming to EN371

Small scale/Laboratory use

Use a NIOSH/MSHA or European Standard EN 149:2001 approved respirator if exposure limits are exceeded or if irritation or other symptoms are experienced.

Recommended half mask:- Valve filtering: EN405; or; Half mask: EN140; plus filter, EN 141

When RPE is used a face piece Fit Test should be conducted

Environmental exposure controls No information available.

SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES

9.1. Information on basic physical and chemical properties

Appearance	Colorless	
Physical State	Liquid	
Odor	Alcohol-like	
Odor Threshold	No data available	
pH	Not applicable	
Melting Point/Range	-98 °C / -144.4 °F	
Softening Point	No data available	
Boiling Point/Range	64.7 °C / 148.5 °F	@ 760 mmHg
Flash Point	12 °C / 53.6 °F	Method - No information available
Evaporation Rate	5.2 (ether = 1)	
Flammability (solid,gas)	Not applicable	Liquid
Explosion Limits	Lower 6 vol% Upper 31 vol%	
Vapor Pressure	128 hPa @ 20 °C	
Vapor Density	1.11	(Air = 1.0)
Specific Gravity / Density	0.791	
Bulk Density	Not applicable	Liquid
Water Solubility	Miscible	
Solubility in other solvents	No information available	
Partition Coefficient (n-octanol/water)		
Component	log Pow	
Methyl alcohol	-0.74	
Autoignition Temperature	455 - °C / 851 - °F	
Decomposition Temperature	No data available	
Viscosity	0.55 cP at 20 °C	

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Explosive Properties No information available Vapors may form explosive mixtures with air
Oxidizing Properties No information available

9.2. Other information

Molecular Formula C H₄ O
Molecular Weight 32.04
VOC Content(%) 100
Surface tension 0.02255 N/m @ 20°C

SECTION 10: STABILITY AND REACTIVITY

10.1. Reactivity None known, based on information available

10.2. Chemical stability Stable under normal conditions.

10.3. Possibility of hazardous reactions

Hazardous Polymerization Hazardous polymerization does not occur.
Hazardous Reactions None under normal processing.

10.4. Conditions to avoid

Incompatible products. Heat, flames and sparks. Keep away from open flames, hot surfaces and sources of ignition.

10.5. Incompatible materials

Strong oxidizing agents. Strong acids. Acid anhydrides. Acid chlorides. Strong bases. Metals. Peroxides.

10.6. Hazardous decomposition products

Carbon monoxide (CO). Formaldehyde.

SECTION 11: TOXICOLOGICAL INFORMATION

11.1. Information on toxicological effects

Product Information

(a) acute toxicity;
Oral Category 3
Dermal Category 3
Inhalation Category 3

Component	LD50 Oral	LD50 Dermal	LC50 Inhalation
Methyl alcohol	Calc. ATE 60 mg/kg LD50 > 1187 – 2769 mg/kg (Rat)	Calc. ATE 60 mg/kg LD50 = 17100 mg/kg (Rabbit)	Calc. ATE 0.6 mg/L (vapours) or 0.5 mg/L (mists) LC50 = 128.2 mg/L (Rat) 4 h

(b) skin corrosion/irritation; Based on available data, the classification criteria are not met

(c) serious eye damage/irritation; Based on available data, the classification criteria are not met

(d) respiratory or skin sensitization;

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Respiratory Skin	Based on available data, the classification criteria are not met
(e) germ cell mutagenicity;	Based on available data, the classification criteria are not met
(f) carcinogenicity;	Based on available data, the classification criteria are not met There are no known carcinogenic chemicals in this product
(g) reproductive toxicity; Developmental Effects	Based on available data, the classification criteria are not met Component substance is listed on California Proposition 65 as a developmental hazard.
(h) STOT-single exposure; Results / Target organs	Category 1 Optic nerve.
(i) STOT-repeated exposure; Target Organs	Based on available data, the classification criteria are not met No information available.
(j) aspiration hazard;	Based on available data, the classification criteria are not met
Symptoms / effects, both acute and delayed	May cause blindness: Inhalation of high vapor concentrations may cause symptoms like headache, dizziness, tiredness, nausea and vomiting

SECTION 12: ECOLOGICAL INFORMATION

12.1. Toxicity
Ecotoxicity effects

Component	Freshwater Fish	Water Flea	Freshwater Algae	Microtox
Methyl alcohol	Pimephales promelas: LC50 > 10000 mg/L 96h	EC50 > 10000 mg/L 24h		EC50 = 39000 mg/L 25 min EC50 = 40000 mg/L 15 min EC50 = 43000 mg/L 5 min

12.2. Persistence and degradability Readily biodegradable
Persistence Persistence is unlikely, based on information available.

12.3. Bioaccumulative potential Bioaccumulation is unlikely

Component	log Pow	Bioconcentration factor (BCF)
Methyl alcohol	-0.74	<10

12.4. Mobility in soil The product contains volatile organic compounds (VOC) which will evaporate easily from all surfaces. Will likely be mobile in the environment due to its volatility. Disperses rapidly in air.
Surface tension 0.02255 N/m @ 20°C

12.5. Results of PBT and vPvB assessment Substance is not considered to be persistent, bioaccumulative and toxic (PBT). Substance is not considered to be very persistent and very bioaccumulative (vPvB).

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12.6. Other adverse effects

Endocrine Disruptor Information
Persistent Organic Pollutant
Ozone Depletion Potential

This product does not contain any known or suspected endocrine disruptors
This product does not contain any known or suspected substance
This product does not contain any known or suspected substance

SECTION 13: DISPOSAL CONSIDERATIONS

13.1. Waste treatment methods

Waste from Residues / Unused Products

Waste is classified as hazardous. Dispose of in accordance with the European Directives on waste and hazardous waste. Dispose of in accordance with local regulations.

Contaminated Packaging

Dispose of this container to hazardous or special waste collection point. Empty containers retain product residue, (liquid and/or vapor), and can be dangerous. Keep product and empty container away from heat and sources of ignition.

European Waste Catalogue (EWC)

According to the European Waste Catalogue, Waste Codes are not product specific, but application specific.

Other Information

Waste codes should be assigned by the user based on the application for which the product was used. Do not dispose of waste into sewer. Can be incinerated, when in compliance with local regulations.

SECTION 14: TRANSPORT INFORMATION

IMDG/IMO

14.1. UN number UN1230
14.2. UN proper shipping name METHANOL
14.3. Transport hazard class(es) 3
 Subsidiary Hazard Class 6.1
14.4. Packing group II

ADR

14.1. UN number UN1230
14.2. UN proper shipping name METHANOL
14.3. Transport hazard class(es) 3
 Subsidiary Hazard Class 6.1
14.4. Packing group II

IATA

14.1. UN number UN1230
14.2. UN proper shipping name METHANOL
14.3. Transport hazard class(es) 3
 Subsidiary Hazard Class 6.1
14.4. Packing group II

14.5. Environmental hazards

No hazards identified

14.6. Special precautions for user

No special precautions required

14.7. Transport in bulk according to Annex II of MARPOL73/78 and the IBC Code

Not applicable, packaged goods

SECTION 15: REGULATORY INFORMATION

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

International Inventories

X = listed, Europe (EINECS/ELINCS/NLP), U.S.A. (TSCA), Canada (DSL/NDSL), Philippines (PICCS), China (IECSC), Japan (ENCS), Australia (AICS), Korea (ECL).

Component	EINECS	ELINCS	NLP	TSCA	DSL	NDSL	PICCS	ENCS	IECSC	AICS	KECL
Methyl alcohol	200-659-6	-		X	X	-	X	X	X	X	KE-2319 3

Component	REACH (1907/2006) - Annex XIV - Substances Subject to Authorization	REACH (1907/2006) - Annex XVII - Restrictions on Certain Dangerous Substances	REACH Regulation (EC 1907/2006) article 59 - Candidate List of Substances of Very High Concern (SVHC)
Methyl alcohol		Use restricted. See item 69. (see http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=CELEX:32006R1907:EN:NOT for restriction details)	

Component	Seveso III Directive (2012/18/EC) - Qualifying Quantities for Major Accident Notification	Seveso III Directive (2012/18/EC) - Qualifying Quantities for Safety Report Requirements
Methyl alcohol	500 tonne	5000 tonne

National Regulations

Component	Germany - Water Classification (VwVwS)	Germany - TA-Luft Class
Methyl alcohol	WGK 2	

Component	France - INRS (Tables of occupational diseases)
Methyl alcohol	Tableaux des maladies professionnelles (TMP) - RG 84

Take note of Control of Substances Hazardous to Health Regulations (COSHH) 2002 and 2005 Amendment.

15.2. Chemical safety assessment

A Chemical Safety Assessment/Report (CSA/CSR) has been conducted by the manufacturer/importer

SECTION 16: OTHER INFORMATION

Full text of H-Statements referred to under sections 2 and 3

H225 - Highly flammable liquid and vapor

H301 - Toxic if swallowed

H311 - Toxic in contact with skin

H331 - Toxic if inhaled

H370 - Causes damage to organs

Legend

CAS - Chemical Abstracts Service

EINECS/ELINCS - European Inventory of Existing Commercial Chemical Substances/EU List of Notified Chemical Substances

PICCS - Philippines Inventory of Chemicals and Chemical Substances

IECSC - Chinese Inventory of Existing Chemical Substances

KECL - Korean Existing and Evaluated Chemical Substances

TSCA - United States Toxic Substances Control Act Section 8(b) Inventory

DSL/NDSL - Canadian Domestic Substances List/Non-Domestic Substances List

ENCS - Japanese Existing and New Chemical Substances

AICS - Australian Inventory of Chemical Substances

NZIoC - New Zealand Inventory of Chemicals

WEL - Workplace Exposure Limit

ACGIH - American Conference of Governmental Industrial Hygienists

DNEL - Derived No Effect Level

RPE - Respiratory Protective Equipment

TWA - Time Weighted Average

IARC - International Agency for Research on Cancer

PNEC - Predicted No Effect Concentration

LD50 - Lethal Dose 50%

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LC50 - Lethal Concentration 50%
NOEC - No Observed Effect Concentration
PBT - Persistent, Bioaccumulative, Toxic

EC50 - Effective Concentration 50%
POW - Partition coefficient Octanol:Water
vPvB - very Persistent, very Bioaccumulative

ADR - European Agreement Concerning the International Carriage of Dangerous Goods by Road

IMO/IMDG - International Maritime Organization/International Maritime Dangerous Goods Code

OECD - Organisation for Economic Co-operation and Development

BCF - Bioconcentration factor

Key literature references and sources for data

Suppliers safety data sheet, Chemadvisor - LOLI, Merck index, RTECS

ICAO/IATA - International Civil Aviation Organization/International Air Transport Association

MARPOL - International Convention for the Prevention of Pollution from Ships

ATE - Acute Toxicity Estimate

VOC - Volatile Organic Compounds

Training Advice

Chemical hazard awareness training, incorporating labelling, Safety Data Sheets (SDS), Personal Protective Equipment (PPE) and hygiene.

Use of personal protective equipment, covering appropriate selection, compatibility, breakthrough thresholds, care, maintenance, fit and standards.

First aid for chemical exposure, including the use of eye wash and safety showers.

Chemical incident response training.

Fire prevention and fighting, identifying hazards and risks, static electricity, explosive atmospheres posed by vapours and dusts.

Creation Date 27-Apr-2009
Revision Date 11-Feb-2019
Revision Summary Not applicable.

This safety data sheet complies with the requirements of Regulation (EC) No. 1907/2006

Disclaimer

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

End of Safety Data Sheet

Annex to the Safety Data Sheet according to Regulation (EC) No 1907/2006 [REACH]

Methanol - Exposure Scenarios

CAS-No 67-56-1	Reach Registration Number 01-2119433307-44-0232	EC-No. 200-659-6
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Exposure Scenarios Overview				
Title	Sector of use	Process category(ies)	Environmental release category	ES Identifier
Manufacture or use as an intermediate or process chemical or extraction agent	SU3 - Industrial uses: Uses of substances as such or in preparations at industrial sites	1, 2, 3, 4, 8a, 8b, 15	ERC1 - Manufacture of substances	ES1-M1 MEOH
Formulation of preparations and/or re-packaging	SU3 - Industrial uses: Uses of substances as such or in preparations at industrial sites	1, 2, 3, 4, 5, 8a, 8b, 9, 14, 15	ERC2 - Formulation of preparations	ES2-F1 MEOH
Laboratory use	SU3 - Industrial uses: Uses of substances as such or in preparations at industrial sites	9, 10, 15	ERC4 - Industrial use of processing aids in processes and products, not becoming part of articles	ES3-L1 MEOH
Laboratory use	SU22 - Professional uses: Public domain (administration, education, entertainment, services, craftsmen)	9, 10, 15	ERC8a - Wide dispersive indoor use of processing aids in open systems	ES4-L2 MEOH

Exposure scenario

ES1 Manufacture of Methanol - ES1-M1 METHANOL

Section 1 - Identification of the use

Main user group	Industrial uses: Uses of substances as such or in preparations at industrial sites
Type	Worker
Processes, tasks, activities covered	Manufacture or use as an intermediate or process chemical or extraction agent. 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
Sector(s) of use	SU3 - Industrial uses: Uses of substances as such or in preparations at industrial sites SU22 - Professional uses: Public domain (administration, education, entertainment, services, craftsmen)
Process category(ies)	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 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 PROC15 - Use as laboratory reagent

Environmental release category(ies) ERC1 - Manufacture of substances

Readily biodegradable in water, soil and sediments, both under aerobic and anaerobic conditions. Compared to other loss mechanisms identified, including volatilization and chemical degradation, biodegradation is expected to be the dominant process controlling the fate in the soil, groundwater, and surface water environments.

Degraded in the atmosphere by photochemical, hydroxyl-radical dependent reactions. The estimated elimination half-life is calculated to be about 17 days. Due to the high solubility in water and its low octanol-water partition coefficient adsorption to soil is considered to be negligible. Given the value of the Henry's Law constant, once in water, it is likely to remain in the aqueous phase. No bioaccumulation is expected.

Not classified as harmful, toxic or very toxic to aquatic life. Not classified as "may cause long lasting effects to aquatic life". Not a PBT or vPvB substance. Therefore not classified with respect to environmental effects.

Section 2 - Operational Conditions and Risk Management Measures

Product characteristics

Physical State	Liquid
pH	7-8
Water Solubility	Miscible
Vapor Pressure	169 hPa @ 25 °C
Covers concentrations up to 100 %	

Section 2.1 - Control of environmental exposure

Environmental release category(ies)

ERC1 - Manufacture of substances

Readily biodegradable in water, soil and sediments, both under aerobic and anaerobic conditions. Compared to other loss mechanisms identified, including volatilization and chemical degradation, biodegradation is expected to be the dominant process controlling the fate in the soil, groundwater, and surface water environments.

Degraded in the atmosphere by photochemical, hydroxyl-radical dependent reactions. The estimated elimination half-life is calculated to be about 17 days. Due to the high solubility in water and its low octanol-water partition coefficient adsorption to soil is considered to be negligible. Given the value of the Henry's Law constant, once in water, it is likely to remain in the aqueous phase. No bioaccumulation is expected.

Not classified as harmful, toxic or very toxic to aquatic life. Not classified as "may cause long lasting effects to aquatic life". Not a PBT or vPvB substance. Therefore not classified with respect to environmental effects.

Control of environmental exposure

Readily biodegradable
Annual amount used in the EU Unspecified

Environmental factors not influenced by risk management

Section 2.2 - Control of worker exposure

General information on risk management related to physicochemical hazard

Remove all sources of ignition. Take precautionary measures against static charges. Use only non-sparking tools. Control entry to work area. Suitable fire detection system. Keep equipment under negative pressure. Check atmosphere for explosiveness and oxygen deficiencies. Segregate work area and mark with appropriate signs in accordance with local/regional/national legislation.

Control of worker exposure

Process category(ies)	PROC1 - Use in closed process, no likelihood of exposure
Covers concentrations up to	100%
Exposure duration	>4 hours (default)
Indoor/Outdoor use	Indoor
Assumes process temperature up to	<=40°C
Covers skin contact area up to	240 cm ²
Technical conditions and measures to control dispersion from source towards	Undertake operation under enclosed conditions

the worker

Additional good practice advice beyond the REACH Chemical Safety Report Use chemically resistant face shield, goggles or safety glasses with side shields when there is potential for direct contact

Process category(ies) PROC2 - Use in closed, continuous process with occasional controlled exposure
Covers concentrations up to 100%
Exposure duration >4 hours (default)
Indoor/Outdoor use Indoor
Assumes process temperature up to <=40°C
Covers skin contact area up to 480 cm2
Technical conditions and measures to control dispersion from source towards the worker Handle substance within a predominantly closed system provided with extract ventilation
Local exhaust ventilation - efficiency of at least 90%

Conditions and measures related to personal protection, hygiene and health evaluation Wear gloves according to EN374 resistant to the solvent(s) in use (APF 5) 80%

Additional good practice advice beyond the REACH Chemical Safety Report Use chemically resistant face shield, goggles or safety glasses with side shields when there is potential for direct contact

Process category(ies) PROC3 - Use in closed batch process (synthesis or formulation)
Covers concentrations up to 100%
Exposure duration >4 hours (default)
Indoor/Outdoor use Indoor
Assumes process temperature up to <=40°C
Covers skin contact area up to 240 cm2
Technical conditions and measures to control dispersion from source towards the worker Local exhaust ventilation - efficiency of at least 90%

Conditions and measures related to personal protection, hygiene and health evaluation Wear gloves according to EN374 resistant to the solvent(s) in use (APF 5) 80%

Additional good practice advice beyond the REACH Chemical Safety Report Use chemically resistant face shield, goggles or safety glasses with side shields when there is potential for direct contact

Process category(ies) PROC4 - Use in batch and other process (synthesis) where opportunity for exposure arises
Covers concentrations up to 100%
Exposure duration >4 hours (default)
Indoor/Outdoor use Indoor
Assumes process temperature up to <=40°C
Covers skin contact area up to 480 cm2
Technical conditions and measures to control dispersion from source towards the worker Local exhaust ventilation - efficiency of at least 90%

Conditions and measures related to personal protection, hygiene and health evaluation Wear gloves according to EN374 resistant to the solvent(s) in use (APF 5) 80%

Additional good practice advice beyond the REACH Chemical Safety Report Use chemically resistant face shield, goggles or safety glasses with side shields when there is potential for direct contact

Process category(ies) PROC8a - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non dedicated facilities
Covers concentrations up to 100%
Exposure duration >4 hours (default)
Indoor/Outdoor use Indoor
Assumes process temperature up to <=40°C
Covers skin contact area up to 960 cm2
Technical conditions and measures to control dispersion from source towards the worker Local exhaust ventilation - efficiency of at least 90%

Conditions and measures related to personal protection, hygiene and health evaluation Wear gloves according to EN374 resistant to the solvent(s) in use (APF 5) 80%

health evaluation
 Additional good practice advice beyond the REACH Chemical Safety Report Use chemically resistant face shield, goggles or safety glasses with side shields when there is potential for direct contact

Process category(ies) PROC8b - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities

Covers concentrations up to 100%
 Exposure duration >4 hours (default)
 Indoor/Outdoor use Indoor
 Assumes process temperature up to <=40°C
 Covers skin contact area up to 960 cm2
 Technical conditions and measures to control dispersion from source towards the worker Local exhaust ventilation - efficiency of at least 90%

Conditions and measures related to personal protection, hygiene and health evaluation Wear gloves according to EN374 resistant to the solvent(s) in use (APF 5) 80%

Additional good practice advice beyond the REACH Chemical Safety Report Use chemically resistant face shield, goggles or safety glasses with side shields when there is potential for direct contact

Process category(ies) PROC15 - Use as laboratory reagent

Covers concentrations up to 100%
 Exposure duration >4 hours (default)
 Indoor/Outdoor use Indoor
 Assumes process temperature up to <=40°C
 Covers skin contact area up to 240 cm2
 Technical conditions and measures to control dispersion from source towards the worker Local exhaust ventilation - efficiency of at least 90%

Conditions and measures related to personal protection, hygiene and health evaluation Wear gloves according to EN374 resistant to the solvent(s) in use (APF 5) 80%

Additional good practice advice beyond the REACH Chemical Safety Report Use chemically resistant face shield, goggles or safety glasses with side shields when there is potential for direct contact

Control of consumer exposure Not intended for consumer use

Section 3 - Exposure estimation

Environment

Environmental release category(ies)

ERC1 - Manufacture of substances

Readily biodegradable in water, soil and sediments, both under aerobic and anaerobic conditions. Compared to other loss mechanisms identified, including volatilization and chemical degradation, biodegradation is expected to be the dominant process controlling the fate in the soil, groundwater, and surface water environments.

Degraded in the atmosphere by photochemical, hydroxyl-radical dependent reactions. The estimated elimination half-life is calculated to be about 17 days. Due to the high solubility in water and its low octanol-water partition coefficient adsorption to soil is considered to be negligible. Given the value of the Henry's Law constant, once in water, it is likely to remain in the aqueous phase. No bioaccumulation is expected.

Not classified as harmful, toxic or very toxic to aquatic life. Not classified as "may cause long lasting effects to aquatic life". Not a PBT or vPvB substance. Therefore not classified with respect to environmental effects.

Predicted No Effect Concentration (PNEC) - See values below

Fresh water	20.8 mg/l	Marine water	2.08 mg/l
Fresh water sediment	77 mg/kg	Marine water sediment	7.7 mg/kg
Water Intermittent	1540 mg/l	Soil (Agriculture)	100 mg/kg
Microorganisms in sewage treatment	100 mg/l		

Health

Derived No Effect Level (DNEL) - See table for values

Route of exposure	Acute effects (local)	Acute effects (systemic)	Chronic effects (local)	Chronic effects (systemic)
Oral		40 mg/kg bw/d		40 mg/kg bw/day
Dermal		260 mg/m ³	260 mg/m ³	260 mg/m ³
Inhalation	260 mg/m ³			

Process category(ies)	Exposure route	Predicted exposure level	Risk characterization ratio (RCR)
PROC1 - Use in closed process, no likelihood of exposure	Worker - dermal, short-term - systemic	0.0343 mg/kg bw/d	<0.01
	Worker - dermal, long-term - systemic	0.034 mg/kg bw/d	< 0.01
	Worker - inhalative, short-term - systemic	0.0534 mg/m ³	<0.01
	Worker - inhalative, long-term - systemic	0.0133 mg/m ³	< 0.1
	Worker - combined, short-term - systemic	0.0419 mg/kg bw/d	< 0.01
	Worker - combined, long-term - systemic	0.036 mg/kg bw/d	< 0.1
PROC2 - Use in closed, continuous process with occasional controlled exposure	Worker - dermal, short-term - systemic	0.274 mg/kg bw/d	< 0.01
	Worker - inhalative, long-term - systemic	3.34 mg/m ³	< 0.1
	Worker - combined, long-term - systemic	0.751 mg/kg bw/d	< 0.1
	Worker - dermal, short-term - systemic	0.274 mg/kg bw/d	< 0.01
	Worker - inhalative, short-term - systemic	13.35 mg/m ³	< 0.1
	Worker - combined, short-term - systemic	2.18 mg/kg bw/d	< 0.1
PROC3 - Use in closed batch process (synthesis or formulation)	Worker - dermal, long-term - systemic	0.137 mg/kg bw/d	< 0.01
	Worker - inhalative, long-term - systemic	6.675 mg/m ³	< 0.1
	Worker - combined, long-term - systemic	1.09 mg/k bw/d	< 0.1
	Worker - dermal, short-term - systemic	0.137 mg/kg bw/d	< 0.01
	Worker - inhalative, short-term - systemic	26.7 mg/m ³	< 0.2
	Worker - combined, short-term - systemic	3.95 mg/kg bw/d	< 0.2
PROC4 - Use in batch and other process (synthesis) where opportunity for exposure arises	Worker - dermal, long-term - systemic	1.37 mg/m ³	< 0.1
	Worker - inhalative, long-term - systemic	13.35 mg/m ³	< 0.1
	Worker - combined, long-term - systemic	3.279 mg/kg bw/d	< 0.1
	Worker - dermal, short-term - systemic	1.37 mg/kg bw/d	< 0.1
	Worker - inhalative, short-term - systemic	53.4 mg/m ³	< 0.1
	Worker - combined, short-term - systemic	9 mg/kg bw/d	0.239
PROC8a - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non dedicated facilities	Worker - dermal, long-term - systemic	2.743 mg/kg bw/d	< 0.1
	Worker - inhalative, long-term - systemic	33.38 mg/m ³	0.128

	Worker - combined, long-term - systemic	7.51 mg/kg bw/d	0.197
	Worker - dermal, short-term - systemic	2.74 mg/kg bw/d	< 0.1
	Worker - inhalative, short-term - systemic	66.75 mg/m ³	0.257
	Worker - combined, short-term - systemic	12.28 mg/kg bw/d	0.32
PROC8b - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities	Worker - dermal, long-term - systemic	2.74 mg/kg bw/d	< 0.1
	Worker - inhalative, long-term - systemic	10.0 mg/m ³	< 0.1
	Worker - combined, long-term - systemic	4.17 mg/kg bw/d	< 0.2
	Worker - dermal, short-term - systemic	2.743 mg/kg bw/d	< 0.1
	Worker - inhalative, short-term - systemic	20.02 mg/m ³	< 0.1
	Worker - combined, short-term - systemic	5.6 mg/kg bw/d	< 0.2
PROC15 - Use as laboratory reagent	Worker - dermal, long-term - systemic	0.068 mg/kg bw/d	< 0.01
	Worker - inhalative, long-term - systemic	6.675 mg/m ³	< 0.1
	Worker - combined, long-term - systemic	1.022 mg/kg bw/d	< 0.1
	Worker - dermal, short-term - systemic	0.0685 mg/kg bw/d	< 0.01
	Worker - inhalative, short-term - systemic	13.351 mg/m ³	< 0.1
	Worker - combined, short-term - systemic	1.976 mg/kg bw/d	< 0.1

Calculation method - Used ECETOC TRA model
- Used Stoffenmanager model

Remarks

Predicted exposures are not expected to exceed the DN(M)EL when the risk management measures/operational conditions outlined in section 2 are implemented

Section 4 - Guidance to check compliance with the exposure scenario

Used ECETOC TRA model

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

Predicted exposures are not expected to exceed the applicable exposure limits (given in section 8 of the SDS) when the operational conditions/risk management measures given in section 2 are implemented

ECHA guidance for downstream users

Annex to the Safety Data Sheet according to Regulation (EC) No 1907/2006 [REACH]

Methanol - Exposure Scenarios

CAS-No 67-56-1	Reach Registration Number 01-2119433307-44-0232	EC-No. 200-659-6
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Exposure Scenarios Overview				
Title	Sector of use	Process category(ies)	Environmental release category	ES Identifier
Manufacture or use as an intermediate or process chemical or extraction agent	SU3 - Industrial uses: Uses of substances as such or in preparations at industrial sites	1, 2, 3, 4, 8a, 8b, 15	ERC1 - Manufacture of substances	ES1-M1 MEOH
Formulation of preparations and/or re-packaging	SU3 - Industrial uses: Uses of substances as such or in preparations at industrial sites	1, 2, 3, 4, 5, 8a, 8b, 9, 14, 15	ERC2 - Formulation of preparations	ES2-F1 MEOH
Laboratory use	SU3 - Industrial uses: Uses of substances as such or in preparations at industrial sites	9, 10, 15	ERC4 - Industrial use of processing aids in processes and products, not becoming part of articles	ES3-L1 MEOH
Laboratory use	SU22 - Professional uses: Public domain (administration, education, entertainment, services, craftsmen)	9, 10, 15	ERC8a - Wide dispersive indoor use of processing aids in open systems	ES4-L2 MEOH

Exposure scenario

ES2 Methanol Formulation and Repacking - ES2-F1 METHANOL

Section 1 - Identification of the use

Main user group	Industrial uses: Uses of substances as such or in preparations at industrial sites
Type	Worker
Processes, tasks, activities covered	Manufacture or use as an intermediate or process chemical or extraction agent. 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
Sector(s) of use	SU3 - Industrial uses: Uses of substances as such or in preparations at industrial sites SU22 - Professional uses: Public domain (administration, education, entertainment, services, craftsmen)
Process category(ies)	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 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 PROC15 - Use as laboratory reagent

Environmental release category(ies) ERC1 - Manufacture of substances

Readily biodegradable in water, soil and sediments, both under aerobic and anaerobic conditions. Compared to other loss mechanisms identified, including volatilization and chemical degradation, biodegradation is expected to be the dominant process controlling the fate in the soil, groundwater, and surface water environments.

Degraded in the atmosphere by photochemical, hydroxyl-radical dependent reactions. The estimated elimination half-life is calculated to be about 17 days. Due to the high solubility in water and its low octanol-water partition coefficient adsorption to soil is considered to be negligible. Given the value of the Henry's Law constant, once in water, it is likely to remain in the aqueous phase. No bioaccumulation is expected.

Not classified as harmful, toxic or very toxic to aquatic life. Not classified as "may cause long lasting effects to aquatic life". Not a PBT or vPvB substance. Therefore not classified with respect to environmental effects.

Section 2 - Operational Conditions and Risk Management Measures

Product characteristics

Physical State	Liquid
pH	7-8
Water Solubility	Miscible
Vapor Pressure	169 hPa @ 25 °C

Covers concentrations up to 100 %

Section 2.1 - Control of environmental exposure

Environmental release category(ies)

ERC1 - Manufacture of substances

Readily biodegradable in water, soil and sediments, both under aerobic and anaerobic conditions. Compared to other loss mechanisms identified, including volatilization and chemical degradation, biodegradation is expected to be the dominant process controlling the fate in the soil, groundwater, and surface water environments.

Degraded in the atmosphere by photochemical, hydroxyl-radical dependent reactions. The estimated elimination half-life is calculated to be about 17 days. Due to the high solubility in water and its low octanol-water partition coefficient adsorption to soil is considered to be negligible. Given the value of the Henry's Law constant, once in water, it is likely to remain in the aqueous phase. No bioaccumulation is expected.

Not classified as harmful, toxic or very toxic to aquatic life. Not classified as "may cause long lasting effects to aquatic life". Not a PBT or vPvB substance. Therefore not classified with respect to environmental effects.

Control of environmental exposure

Readily biodegradable
Annual amount used in the EU Unspecified

Environmental factors not influenced by risk management

Section 2.2 - Control of worker exposure

General information on risk management related to physicochemical hazard

Remove all sources of ignition. Take precautionary measures against static charges. Use only non-sparking tools. Control entry to work area. Suitable fire detection system. Keep equipment under negative pressure. Check atmosphere for explosiveness and oxygen deficiencies. Segregate work area and mark with appropriate signs in accordance with local/regional/national legislation.

Control of worker exposure

Process category(ies)	PROC1 - Use in closed process, no likelihood of exposure
Covers concentrations up to	100%
Exposure duration	>4 hours (default)
Indoor/Outdoor use	Indoor
Assumes process temperature up to	<=40°C
Covers skin contact area up to	240 cm ²
Technical conditions and measures to control dispersion from source towards	Undertake operation under enclosed conditions

the worker	
Additional good practice advice beyond the REACH Chemical Safety Report	Use chemically resistant face shield, goggles or safety glasses with side shields when there is potential for direct contact -----
Process category(ies)	PROC2 - Use in closed, continuous process with occasional controlled exposure
Covers concentrations up to	100%
Exposure duration	>4 hours (default)
Indoor/Outdoor use	Indoor
Assumes process temperature up to	<=40°C
Covers skin contact area up to	480 cm2
Technical conditions and measures to control dispersion from source towards the worker	Handle substance within a predominantly closed system provided with extract ventilation Local exhaust ventilation - efficiency of at least 90%
Conditions and measures related to personal protection, hygiene and health evaluation	Wear gloves according to EN374 resistant to the solvent(s) in use (APF 5) 80%
Additional good practice advice beyond the REACH Chemical Safety Report	Use chemically resistant face shield, goggles or safety glasses with side shields when there is potential for direct contact -----
Process category(ies)	PROC3 - Use in closed batch process (synthesis or formulation)
Covers concentrations up to	100%
Exposure duration	>4 hours (default)
Indoor/Outdoor use	Indoor
Assumes process temperature up to	<=40°C
Covers skin contact area up to	240 cm2
Technical conditions and measures to control dispersion from source towards the worker	Local exhaust ventilation - efficiency of at least 90%
Conditions and measures related to personal protection, hygiene and health evaluation	Wear gloves according to EN374 resistant to the solvent(s) in use (APF 5) 80%
Additional good practice advice beyond the REACH Chemical Safety Report	Use chemically resistant face shield, goggles or safety glasses with side shields when there is potential for direct contact -----
Process category(ies)	PROC4 - Use in batch and other process (synthesis) where opportunity for exposure arises
Covers concentrations up to	100%
Exposure duration	>4 hours (default)
Indoor/Outdoor use	Indoor
Assumes process temperature up to	<=40°C
Covers skin contact area up to	480 cm2
Technical conditions and measures to control dispersion from source towards the worker	Local exhaust ventilation - efficiency of at least 90%
Conditions and measures related to personal protection, hygiene and health evaluation	Wear gloves according to EN374 resistant to the solvent(s) in use (APF 5) 80%
Additional good practice advice beyond the REACH Chemical Safety Report	Use chemically resistant face shield, goggles or safety glasses with side shields when there is potential for direct contact -----
Process category(ies)	PROC8a - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non dedicated facilities
Covers concentrations up to	100%
Exposure duration	>4 hours (default)
Indoor/Outdoor use	Indoor
Assumes process temperature up to	<=40°C
Covers skin contact area up to	960 cm2
Technical conditions and measures to control dispersion from source towards the worker	Local exhaust ventilation - efficiency of at least 90%
Conditions and measures related to personal protection, hygiene and health evaluation	Wear gloves according to EN374 resistant to the solvent(s) in use (APF 5) 80%

health evaluation

Additional good practice advice beyond the REACH Chemical Safety Report Use chemically resistant face shield, goggles or safety glasses with side shields when there is potential for direct contact

Process category(ies) PROC8b - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities

Covers concentrations up to 100%
 Exposure duration >4 hours (default)
 Indoor/Outdoor use Indoor
 Assumes process temperature up to <=40°C
 Covers skin contact area up to 960 cm2
 Technical conditions and measures to control dispersion from source towards the worker Local exhaust ventilation - efficiency of at least 90%

Conditions and measures related to personal protection, hygiene and health evaluation Wear gloves according to EN374 resistant to the solvent(s) in use (APF 5) 80%

Additional good practice advice beyond the REACH Chemical Safety Report Use chemically resistant face shield, goggles or safety glasses with side shields when there is potential for direct contact

Process category(ies) PROC15 - Use as laboratory reagent

Covers concentrations up to 100%
 Exposure duration >4 hours (default)
 Indoor/Outdoor use Indoor
 Assumes process temperature up to <=40°C
 Covers skin contact area up to 240 cm2
 Technical conditions and measures to control dispersion from source towards the worker Local exhaust ventilation - efficiency of at least 90%

Conditions and measures related to personal protection, hygiene and health evaluation Wear gloves according to EN374 resistant to the solvent(s) in use (APF 5) 80%

Additional good practice advice beyond the REACH Chemical Safety Report Use chemically resistant face shield, goggles or safety glasses with side shields when there is potential for direct contact

Control of consumer exposure Not intended for consumer use

Section 3 - Exposure estimation

Environment

Environmental release category(ies)

ERC1 - Manufacture of substances

Readily biodegradable in water, soil and sediments, both under aerobic and anaerobic conditions. Compared to other loss mechanisms identified, including volatilization and chemical degradation, biodegradation is expected to be the dominant process controlling the fate in the soil, groundwater, and surface water environments.

Degraded in the atmosphere by photochemical, hydroxyl-radical dependent reactions. The estimated elimination half-life is calculated to be about 17 days. Due to the high solubility in water and its low octanol-water partition coefficient adsorption to soil is considered to be negligible. Given the value of the Henry's Law constant, once in water, it is likely to remain in the aqueous phase. No bioaccumulation is expected.

Not classified as harmful, toxic or very toxic to aquatic life. Not classified as "may cause long lasting effects to aquatic life". Not a PBT or vPvB substance. Therefore not classified with respect to environmental effects.

Predicted No Effect Concentration (PNEC) - See values below

Fresh water	20.8 mg/l	Marine water	2.08 mg/l
Fresh water sediment	77 mg/kg	Marine water sediment	7.7 mg/kg
Water Intermittent	1540 mg/l	Soil (Agriculture)	100 mg/kg
Microorganisms in sewage treatment	100 mg/l		

Health

Derived No Effect Level (DNEL) - See table for values

Route of exposure	Acute effects (local)	Acute effects (systemic)	Chronic effects (local)	Chronic effects (systemic)
Oral		40 mg/kg bw/d		40 mg/kg bw/day
Dermal		260 mg/m ³	260 mg/m ³	260 mg/m ³
Inhalation	260 mg/m ³			

Process category(ies)	Exposure route	Predicted exposure level	Risk characterization ratio (RCR)
PROC1 - Use in closed process, no likelihood of exposure	Worker - dermal, short-term - systemic	0.0343 mg/kg bw/d	<0.01
	Worker - dermal, long-term - systemic	0.034 mg/kg bw/d	< 0.01
	Worker - inhalative, short-term - systemic	0.0534 mg/m ³	<0.01
	Worker - inhalative, long-term - systemic	0.0133 mg/m ³	< 0.1
	Worker - combined, short-term - systemic	0.0419 mg/kg bw/d	< 0.01
	Worker - combined, long-term - systemic	0.036 mg/kg bw/d	< 0.1
PROC2 - Use in closed, continuous process with occasional controlled exposure	Worker - dermal, short-term - systemic	0.274 mg/kg bw/d	< 0.01
	Worker - inhalative, long-term - systemic	3.34 mg/m ³	< 0.1
	Worker - combined, long-term - systemic	0.751 mg/kg bw/d	< 0.1
	Worker - dermal, short-term - systemic	0.274 mg/kg bw/d	< 0.01
	Worker - inhalative, short-term - systemic	13.35 mg/m ³	< 0.1
	Worker - combined, short-term - systemic	2.18 mg/kg bw/d	< 0.1
PROC3 - Use in closed batch process (synthesis or formulation)	Worker - dermal, long-term - systemic	0.137 mg/kg bw/d	< 0.01
	Worker - inhalative, long-term - systemic	6.675 mg/m ³	< 0.1
	Worker - combined, long-term - systemic	1.09 mg/k bw/d	< 0.1
	Worker - dermal, short-term - systemic	0.137 mg/kg bw/d	< 0.01
	Worker - inhalative, short-term - systemic	26.7 mg/m ³	< 0.2
	Worker - combined, short-term - systemic	3.95 mg/kg bw/d	< 0.2
PROC4 - Use in batch and other process (synthesis) where opportunity for exposure arises	Worker - dermal, long-term - systemic	1.37 mg/m ³	< 0.1
	Worker - inhalative, long-term - systemic	13.35 mg/m ³	< 0.1
	Worker - combined, long-term - systemic	3.279 mg/kg bw/d	< 0.1
	Worker - dermal, short-term - systemic	1.37 mg/kg bw/d	< 0.1
	Worker - inhalative, short-term - systemic	53.4 mg/m ³	< 0.1
	Worker - combined, short-term - systemic	9 mg/kg bw/d	0.239
PROC8a - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non dedicated facilities	Worker - dermal, long-term - systemic	2.743 mg/kg bw/d	< 0.1
	Worker - inhalative, long-term - systemic	33.38 mg/m ³	0.128

	Worker - combined, long-term - systemic	7.51 mg/kg bw/d	0.197
	Worker - dermal, short-term - systemic	2.74 mg/kg bw/d	< 0.1
	Worker - inhalative, short-term - systemic	66.75 mg/m ³	0.257
	Worker - combined, short-term - systemic	12.28 mg/kg bw/d	0.32
PROC8b - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities	Worker - dermal, long-term - systemic	2.74 mg/kg bw/d	< 0.1
	Worker - inhalative, long-term - systemic	10.0 mg/m ³	< 0.1
	Worker - combined, long-term - systemic	4.17 mg/kg bw/d	< 0.2
	Worker - dermal, short-term - systemic	2.743 mg/kg bw/d	< 0.1
	Worker - inhalative, short-term - systemic	20.02 mg/m ³	< 0.1
	Worker - combined, short-term - systemic	5.6 mg/kg bw/d	< 0.2
PROC15 - Use as laboratory reagent	Worker - dermal, long-term - systemic	0.068 mg/kg bw/d	< 0.01
	Worker - inhalative, long-term - systemic	6.675 mg/m ³	< 0.1
	Worker - combined, long-term - systemic	1.022 mg/kg bw/d	< 0.1
	Worker - dermal, short-term - systemic	0.0685 mg/kg bw/d	< 0.01
	Worker - inhalative, short-term - systemic	13.351 mg/m ³	< 0.1
	Worker - combined, short-term - systemic	1.976 mg/kg bw/d	< 0.1

Calculation method - Used ECETOC TRA model
 - Used Stoffenmanager model

Remarks

Predicted exposures are not expected to exceed the DN(M)EL when the risk management measures/operational conditions outlined in section 2 are implemented

Section 4 - Guidance to check compliance with the exposure scenario

Used ECETOC TRA model

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

Predicted exposures are not expected to exceed the applicable exposure limits (given in section 8 of the SDS) when the operational conditions/risk management measures given in section 2 are implemented

ECHA guidance for downstream users

Annex to the Safety Data Sheet according to Regulation (EC) No 1907/2006 [REACH]

Methanol - Exposure Scenarios

CAS-No 67-56-1	Reach Registration Number 01-2119433307-44-0232	EC-No. 200-659-6
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Exposure Scenarios Overview				
Title	Sector of use	Process category(ies)	Environmental release category	ES Identifier
Manufacture or use as an intermediate or process chemical or extraction agent	SU3 - Industrial uses: Uses of substances as such or in preparations at industrial sites	1, 2, 3, 4, 8a, 8b, 15	ERC1 - Manufacture of substances	ES1-M1 MEOH
Formulation of preparations and/or re-packaging	SU3 - Industrial uses: Uses of substances as such or in preparations at industrial sites	1, 2, 3, 4, 5, 8a, 8b, 9, 14, 15	ERC2 - Formulation of preparations	ES2-F1 MEOH
Laboratory use	SU3 - Industrial uses: Uses of substances as such or in preparations at industrial sites	9, 10, 15	ERC4 - Industrial use of processing aids in processes and products, not becoming part of articles	ES3-L1 MEOH
Laboratory use	SU22 - Professional uses: Public domain (administration, education, entertainment, services, craftsmen)	9, 10, 15	ERC8a - Wide dispersive indoor use of processing aids in open systems	ES4-L2 MEOH

Exposure scenario

ES3 Laboratory uses (Industrial) - ES3-L1 METHANOL

Section 1 - Identification of the use

Main user group	Industrial uses: Uses of substances as such or in preparations at industrial sites
Type	Worker
Processes, tasks, activities covered	Manufacture or use as an intermediate or process chemical or extraction agent. 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
Sector(s) of use	SU3 - Industrial uses: Uses of substances as such or in preparations at industrial sites SU22 - Professional uses: Public domain (administration, education, entertainment, services, craftsmen)
Product category(ies)	PC21 - Laboratory chemicals
Process category(ies)	PROC10 - Roller application or brushing PROC15 - Use as laboratory reagent
Environmental release category(ies)	ERC4 - Industrial use of processing aids in processes and products, not becoming part of articles

Section 2 - Operational Conditions and Risk Management Measures

Product characteristics

Physical State	Liquid
pH	7-8
Water Solubility	Miscible
Vapor Pressure	169 hPa @ 25 °C
Covers concentrations up to 100 %	

Section 2.1 - Control of environmental exposure**Environmental release category(ies)**

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

Control of environmental exposure

Readily biodegradable
Annual amount used in the EU Unspecified

Environmental factors not influenced by risk management**Section 2.2 - Control of worker exposure****General information on risk management related to physicochemical hazard**

Remove all sources of ignition. Take precautionary measures against static charges. Use only non-sparking tools. Control entry to work area. Suitable fire detection system. Keep equipment under negative pressure. Check atmosphere for explosiveness and oxygen deficiencies. Segregate work area and mark with appropriate signs in accordance with local/regional/national legislation.

Control of worker exposure

Process category(ies)	PROC15 - Use as laboratory reagent
Covers concentrations up to	100%
Exposure duration	>4 hours (default)
Indoor/Outdoor use	Indoor
Assumes process temperature up to	<=40°C
Covers skin contact area up to	240 cm ²
Technical conditions and measures to control dispersion from source towards the worker	Local exhaust ventilation - efficiency of at least 90%
Conditions and measures related to personal protection, hygiene and health evaluation	Wear gloves according to EN374 resistant to the solvent(s) in use (APF 5) 80%
Additional good practice advice beyond the REACH Chemical Safety Report	Use chemically resistant face shield, goggles or safety glasses with side shields when there is potential for direct contact

Process category(ies)	PROC10 - Roller application or brushing
Covers concentrations up to	100%
Exposure duration	>4 hours (default)
Indoor/Outdoor use	Indoor
Assumes process temperature up to	< =40C
Covers skin contact area up to	480 cm ²
Technical conditions and measures to control dispersion from source towards the worker	Local exhaust ventilation - efficiency of at least 90%
Conditions and measures related to personal protection, hygiene and health evaluation	Wear gloves according to EN374 resistant to the solvent(s) in use (APF 5) 80%
Additional good practice advice beyond the REACH Chemical Safety Report	Use chemically resistant face shield, goggles or safety glasses with side shields when there is potential for direct contact

Control of consumer exposure Not intended for consumer use

Section 3 - Exposure estimation

Environment

Environmental release category(ies)

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

Predicted No Effect Concentration (PNEC) - See values below

Fresh water	20.8 mg/l	Marine water	2.08 mg/l
Fresh water sediment	77 mg/kg	Marine water sediment	7.7 mg/kg
Water Intermittent	1540 mg/l	Soil (Agriculture)	100 mg/kg
Microorganisms in sewage treatment	100 mg/l		

Health

Derived No Effect Level (DNEL) - See table for values

<u>Route of exposure</u>	Acute effects (local)	Acute effects (systemic)	Chronic effects (local)	Chronic effects (systemic)
Oral				
Dermal		40 mg/kg bw/d		40 mg/kg bw/day
Inhalation	260 mg/m ³	260 mg/m ³	260 mg/m ³	260 mg/m ³

Process category(ies)	Exposure route	Predicted exposure level	Risk characterization ratio (RCR)
PROC10 - Roller application or brushing	Worker - dermal, long-term - systemic	4.39 mg/kg bw/d	0.109
	Worker - inhalative, long-term - systemic	26.7 mg/m ³	0.102
	Worker - combined, long-term - systemic	8.2 mg/kg bw/d	0.212
	Worker - dermal, short-term - systemic	4.39 mg/kg bw/d	0.109
	Worker - inhalative, short-term - systemic	53.4 mg/m ³	0.205
	Worker - combined, short-term - systemic	12.02 mg/kg bw/d	0.315
PROC15 - Use as laboratory reagent	Worker - dermal, long-term - systemic	0.068 mg/kg bw/d	< 0.01
	Worker - inhalative, long-term - systemic	6.675 mg/m ³	< 0.1
	Worker - combined, long-term - systemic	1.022 mg/kg bw/d	< 0.1
	Worker - dermal, short-term - systemic	0.0685 mg/kg bw/d	< 0.01
	Worker - inhalative, short-term - systemic	13.351 mg/m ³	< 0.1
	Worker - combined, short-term - systemic	1.976 mg/kg bw/d	< 0.1

Calculation method - Used ECETOC TRA model

- Used Stoffenmanager model

Remarks

Predicted exposures are not expected to exceed the DN(M)EL when the risk management measures/operational conditions outlined in section 2 are implemented

Section 4 - Guidance to check compliance with the exposure scenario

Used ECETOC TRA model

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

Predicted exposures are not expected to exceed the applicable exposure limits (given in section 8 of the SDS) when the operational conditions/risk management measures given in section 2 are implemented
ECHA guidance for downstream users

Annex to the Safety Data Sheet according to Regulation (EC) No 1907/2006 [REACH]

Methanol - Exposure Scenarios

CAS-No 67-56-1	Reach Registration Number 01-2119433307-44-0232	EC-No. 200-659-6
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Exposure Scenarios Overview				
Title	Sector of use	Process category(ies)	Environmental release category	ES Identifier
Manufacture or use as an intermediate or process chemical or extraction agent	SU3 - Industrial uses: Uses of substances as such or in preparations at industrial sites	1, 2, 3, 4, 8a, 8b, 15	ERC1 - Manufacture of substances	ES1-M1 MEOH
Formulation of preparations and/or re-packaging	SU3 - Industrial uses: Uses of substances as such or in preparations at industrial sites	1, 2, 3, 4, 5, 8a, 8b, 9, 14, 15	ERC2 - Formulation of preparations	ES2-F1 MEOH
Laboratory use	SU3 - Industrial uses: Uses of substances as such or in preparations at industrial sites	9, 10, 15	ERC4 - Industrial use of processing aids in processes and products, not becoming part of articles	ES3-L1 MEOH
Laboratory use	SU22 - Professional uses: Public domain (administration, education, entertainment, services, craftsmen)	9, 10, 15	ERC8a - Wide dispersive indoor use of processing aids in open systems	ES4-L2 MEOH

Exposure scenario

ES4 Laboratory uses (Professional) - ES4-L2 METHANOL

Section 1 - Identification of the use

Main user group	Industrial uses: Uses of substances as such or in preparations at industrial sites
Type	Worker
Processes, tasks, activities covered	Manufacture or use as an intermediate or process chemical or extraction agent. 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
Sector(s) of use	SU3 - Industrial uses: Uses of substances as such or in preparations at industrial sites SU22 - Professional uses: Public domain (administration, education, entertainment, services, craftsmen)
Product category(ies)	PC21 - Laboratory chemicals
Process category(ies)	PROC10 - Roller application or brushing PROC15 - Use as laboratory reagent
Environmental release category(ies)	ERC4 - Industrial use of processing aids in processes and products, not becoming part of articles

Section 2 - Operational Conditions and Risk Management Measures

Product characteristics

Physical State	Liquid
pH	7-8
Water Solubility	Miscible
Vapor Pressure	169 hPa @ 25 °C
Covers concentrations up to 100 %	

Section 2.1 - Control of environmental exposure**Environmental release category(ies)**

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

Control of environmental exposure

Readily biodegradable
Annual amount used in the EU Unspecified

Environmental factors not influenced by risk management**Section 2.2 - Control of worker exposure****General information on risk management related to physicochemical hazard**

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Control of worker exposure

Process category(ies)	PROC15 - Use as laboratory reagent
Covers concentrations up to	100%
Exposure duration	>4 hours (default)
Indoor/Outdoor use	Indoor
Assumes process temperature up to	<=40°C
Covers skin contact area up to	240 cm ²
Technical conditions and measures to control dispersion from source towards the worker	Local exhaust ventilation - efficiency of at least 80%
Conditions and measures related to personal protection, hygiene and health evaluation	Wear gloves according to EN374 resistant to the solvent(s) in use (APF 5) 80%
Additional good practice advice beyond the REACH Chemical Safety Report	Use chemically resistant face shield, goggles or safety glasses with side shields when there is potential for direct contact

Process category(ies)	PROC10 - Roller application or brushing
Covers concentrations up to	<=5%
Exposure duration	>4 hours (default)
Indoor/Outdoor use	Indoor
Assumes process temperature up to	< =40C
Covers skin contact area up to	960 cm ²
Technical conditions and measures to control dispersion from source towards the worker	Local exhaust ventilation - efficiency of at least 90%
Conditions and measures related to personal protection, hygiene and health evaluation	Wear gloves according to EN374 resistant to the solvent(s) in use (APF 5) 80%
Additional good practice advice beyond the REACH Chemical Safety Report	Use chemically resistant face shield, goggles or safety glasses with side shields when there is potential for direct contact

Control of consumer exposure Not intended for consumer use

Section 3 - Exposure estimation

Environment

Environmental release category(ies)

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

Predicted No Effect Concentration (PNEC) - See values below

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Process category(ies)	Exposure route	Predicted exposure level	Risk characterization ratio (RCR)
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	Worker - inhalative, long-term - systemic	26.7 mg/m ³	0.102
	Worker - combined, long-term - systemic	8.2 mg/kg bw/d	0.212
	Worker - dermal, short-term - systemic	4.39 mg/kg bw/d	0.109
	Worker - inhalative, short-term - systemic	53.4 mg/m ³	0.205
	Worker - combined, short-term - systemic	12.02 mg/kg bw/d	0.315
PROC15 - Use as laboratory reagent	Worker - dermal, long-term - systemic	0.068 mg/kg bw/d	< 0.01
	Worker - inhalative, long-term - systemic	6.675 mg/m ³	< 0.1
	Worker - combined, long-term - systemic	1.022 mg/kg bw/d	< 0.1
	Worker - dermal, short-term - systemic	0.0685 mg/kg bw/d	< 0.01
	Worker - inhalative, short-term - systemic	13.351 mg/m ³	< 0.1
	Worker - combined, short-term - systemic	1.976 mg/kg bw/d	< 0.1

Calculation method - Used ECETOC TRA model
 - Used Stoffenmanager model

Remarks

Predicted exposures are not expected to exceed the DN(M)EL when the risk management measures/operational conditions outlined in section 2 are implemented

Section 4 - Guidance to check compliance with the exposure scenario

Used ECETOC TRA model

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

Predicted exposures are not expected to exceed the applicable exposure limits (given in section 8 of the SDS) when the operational conditions/risk management measures given in section 2 are implemented
ECHA guidance for downstream users