SAFETY DATA SHEET

according to Regulation UK SI 2019/758 and UK SI 2020/1577 as amended

Creation Date 03-Aug-2011 **Revision Date** 11-Oct-2023 **Revision Number** 5

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

1.1. Product identifier

Product Description: 10mM Ammonium Formate in Methanol + 0.05% Formic Acid
Cat No. : MB122-1

Unique Formula Identifier (UFI) EA1P-93GG-SX0Y-W3VG

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 SU22 - Professional uses: Public domain (administration, education, entertainment, services, craftsmen)
Product category	PC21 - Laboratory chemicals
Process categories	PROC15 - Use as a laboratory reagent see SECTION 16 for a complete list of uses for which an exposure scenario is provided as an annex
Environmental release category	ERC2 - Formulation of preparations ERC4 - Industrial use of processing aids in processes and products, not becoming part of articles ERC8a - Wide dispersive indoor use of processing aids in open systems
Uses advised against	SU21 - Consumer uses: Private households (= general public = consumers) REACH Annex XVII Restriction - refer to SECTION 15

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
Thermo Fisher Scientific
Janssen Pharmaceuticalaan 3a, 2440 Geel,
Belgium

E-mail address begel.sdsdesk@thermofisher.com

1.4. Emergency telephone number

For information **US** call: 001-800-227-6701 / **Europe** call: +32 14 57 52 11
Emergency Number **US:**001-201-796-7100 / **Europe:** +32 14 57 52 99
CHEMTREC Tel. No. **US:**001-800-424-9300 / **Europe:**001-703-527-3887

Poison Centre - Emergency information services

Ireland : National Poisons Information Centre (NPIC) -
01 809 2166 (8am-10pm, 7 days a week)
Malta : +356 2395 2000
Cyprus : +357 2240 5611

SECTION 2: HAZARDS IDENTIFICATION

2.1. Classification of the substance or mixture

CLP Classification - According to GB-CLP Regulations UK SI 2019/720 and UK SI 2020/1567

Physical hazards

Flammable liquids	Category 2 (H225)

Health hazards

Acute oral toxicity	Category 3 (H301)
Acute dermal toxicity	Category 3 (H311)
Acute Inhalation Toxicity - Vapors	Category 3 (H331)
Specific target organ toxicity - (single exposure)	Category 1 (H370)

Environmental hazards
Based on available data, the classification criteria are not met

Full text of Hazard Statements: see section 16

2.2. Label elements

Signal Word **Danger**

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

Precautionary Statements
P210 - Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking
P280 - Wear protective gloves/protective clothing
P301 + P310 - IF SWALLOWED: Immediately call a POISON CENTER or doctor/physician
P303 + P361 + P353 - IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water or shower
P304 + P340 - IF INHALED: Remove person to fresh air and keep comfortable for breathing
P311 - Call a POISON CENTER or doctor/physician

2.3. Other hazards

Substance is not considered persistent, bioaccumulative and toxic (PBT) / very persistent and very bioaccumulative (vPvB)

Toxic to terrestrial vertebrates
This product does not contain any known or suspected endocrine disruptors

SECTION 3: COMPOSITION/INFORMATION ON INGREDIENTS

3.2. Mixtures

Component	CAS No	EC No	Weight %	CLP Classification - According to GB-CLP Regulations UK SI 2019/720 and UK SI 2020/1567
Methyl alcohol	67-56-1	200-659-6	>99.8	Flam. Liq. 2 (H225) Acute Tox. 3 (H301) Acute Tox. 3 (H311) Acute Tox. 3 (H331) STOT SE 1 (H370)
Ammonium formate	540-69-2	EEC No. 208-753-9	<0.1	Skin Irrit. 2 (H315) Eye Irrit. 2 (H319) STOT SE 3 (H335)
Formic acid	64-18-6	200-579-1	0.05	Flam. Liq. 3 (H226) Skin Corr. 1A (H314) Eye Dam. 1 (H318)

Component	Specific concentration limits (SCL's)	M-Factor	Component notes
Methyl alcohol	STOT Single Exp. 1 :: >= 10 STOT Single Exp. 2 :: 3 - < 10	-	-
Formic acid	Skin Corr. 1A :: C>=90% Skin Corr. 1B :: 10%<=C<90% Eye Irrit. 2 :: 2%<=C<10% Skin Irrit. 2 :: 2%<=C<10%	-	-

Components	Reach Registration Number	
Methanol	01-2119433307-44-0232	

Full text of Hazard Statements: see section 16

SECTION 4: FIRST AID MEASURES

4.1. Description of first aid measures

General Advice Show this safety data sheet to the doctor in attendance. Immediate medical attention is required.

Eye Contact Rinse immediately with plenty of water, also under the eyelids, for at least 15 minutes. In the case of contact with eyes, rinse immediately with plenty of water and seek medical advice.

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 Remove to fresh air. If not breathing, give artificial respiration. 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.

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

. 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
CO_2, dry chemical, dry sand, alcohol-resistant foam. Water mist may be used to cool closed containers. Water mist may be used to cool closed containers.

Extinguishing media which must not be used for safety reasons
No information available.

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. Thermal decomposition can lead to release of irritating gases and vapors. Keep product and empty container away from heat and sources of ignition. Vapors may form explosive mixtures with air.

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

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

6.2. Environmental precautions

Should not be released into the environment.

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/face protection. Do not get in eyes, on skin, or on clothing. Use only under a chemical fume hood. Do not breathe mist/vapors/spray. Do not ingest. If swallowed then seek immediate medical assistance. 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
Handle in accordance with good industrial hygiene and safety practice. Keep away from food, drink and animal feeding stuffs. Do not eat, drink or smoke when using this product. Remove and wash contaminated clothing and gloves, including the inside, before re-use. Wash hands before breaks and after work.

7.2. Conditions for safe storage, including any incompatibilities

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

Technical Rules for Hazardous Substances (TRGS) 510 Storage Class (LGK) (Germany) Class 3

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 (EU) 2019/1831 of 24 October 2019 establishing a fifth list of indicative occupational exposure limit values pursuant to Council Directive 98/24/EC and amending Commission Directive 2000/39/EC **UK** - EH40/2005 Work Exposure Limits, Fourth edition. Published 2020. **IRE -** 2021 Code of Practice for the Chemical Agents Regulations, Schedule 1. Published by the Health and Safety Authority

Component	The United Kingdom	European Union	Ireland
Methyl alcohol	WEL - TWA: 200 ppm TWA; 266 mg/m³ TWA WEL - STEL: 250 ppm STEL; 333 mg/m³ STEL	TWA: 200 ppm 8 hr TWA: 260 mg/m³ 8 hr Skin	TWA: 200 ppm 8 hr. TWA: 260 mg/m³ 8 hr. STEL: 600 ppm 15 min STEL: 780 mg/m³ 15 min Skin
Formic acid	STEL: 15 ppm 15 min STEL: 28.8 mg/m³ 15 min TWA: 5 ppm 8 hr TWA: 9.6 mg/m³ 8 hr	TWA: 5 ppm (8hr) TWA: 9 mg/m³ (8hr)	TWA: 5 ppm 8 hr. TWA: 9 mg/m³ 8 hr. STEL: 15 ppm 15 min STEL: 27 mg/m³ 15 min

Biological limit values
List source(s):

Derived No Effect Level (DNEL) / Derived Minimum Effect Level (DMEL)
See table for values

Component	Acute effects local (Dermal)	Acute effects systemic (Dermal)	Chronic effects local (Dermal)	Chronic effects systemic (Dermal)
Methyl alcohol		DNEL = 20mg/kg		DNEL = 20mg/kg

67-56-1 (>99.8)		bw/day		bw/day

Component	Acute effects local (Inhalation)	Acute effects systemic (Inhalation)	Chronic effects local (Inhalation)	Chronic effects systemic (Inhalation)
Methyl alcohol 67-56-1 (>99.8)	DNEL = 130mg/m³	DNEL = 130mg/m³	DNEL = 130mg/m³	DNEL = 130mg/m³
Formic acid 64-18-6 (0.05)			DNEL = 9.5mg/m³	

Predicted No Effect Concentration (PNEC)
See values below.

Component	Fresh water	Fresh water sediment	Water Intermittent	Microorganisms in sewage treatment	Soil (Agriculture)
Methyl alcohol 67-56-1 (>99.8)	PNEC = 20.8mg/L	PNEC = 77mg/kg sediment dw	PNEC = 1540mg/L	PNEC = 100mg/L	PNEC = 100mg/kg soil dw
Formic acid 64-18-6 (0.05)	PNEC = 2mg/L	PNEC = 13.4mg/kg sediment dw	PNEC = 1mg/L	PNEC = 7.2mg/L	PNEC = 1.5mg/kg soil dw

Component	Marine water	Marine water sediment	Marine water intermittent	Food chain	Air
Methyl alcohol 67-56-1 (>99.8)	PNEC = 2.08mg/L	PNEC = 7.7mg/kg sediment dw			
Formic acid 64-18-6 (0.05)	PNEC = 0.2mg/L	PNEC = 1.34mg/kg sediment dw			

8.2. Exposure controls

Engineering Measures
Ensure adequate ventilation, especially in confined areas. 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 Wear safety glasses with side shields (or goggles) (European standard - EN 166)

Hand Protection Protective gloves

Glove material	Breakthrough time	Glove thickness	EU standard	Glove comments
Viton (R)	See manufacturers recommendations	-	EN 374	(minimum requirement)

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 compatability, 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

Physical State	Liquid	
Appearance	Clear	
Odor	Alcohol-like	
Odor Threshold	No data available	
Melting Point/Range	No data available	
Softening Point	No data available	
Boiling Point/Range	65 °C / 149 °F	@760 mmHg
Flammability (liquid)	Highly flammable	On basis of test data
Flammability (solid,gas)	Not applicable	Liquid
Explosion Limits	No data available	
Flash Point	12 °C / 53.6 °F	**Method -** No information available
Autoignition Temperature	No data available	
Decomposition Temperature	No data available	
pH	3.5	
Viscosity	No data available	
Water Solubility	No information available	
Solubility in other solvents	No information available	

Partition Coefficient (n-octanol/water)

Component	**log Pow**
Methyl alcohol	-0.74
Formic acid	-1.9

Vapor Pressure	23 hPa @ 20 °C	
Density / Specific Gravity	0.791	
Bulk Density	Not applicable	Liquid
Vapor Density	No data available	(Air = 1.0)
Particle characteristics	Not applicable (liquid)	

9.2. Other information

Explosive Properties Vapors may form explosive mixtures with air

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

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

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 hazard classes as defined in Regulation (EC) No 1272/2008

Product Information

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

Toxicology data for the components

Component	LD50 Oral	LD50 Dermal	LC50 Inhalation
Methyl alcohol	LD50 = 1187 – 2769 mg/kg (Rat)	LD50 = 17100 mg/kg (Rabbit)	LC50 = 128.2 mg/L (Rat) 4 h
Formic acid	LD50 = 1100 mg/kg (Rat)	-	LC50 = 7.85 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;
Respiratory Based on available data, the classification criteria are not met
Skin Based on available data, the classification criteria are not met

Component	Test method	Test species	Study result
Methyl alcohol 67-56-1 (>99.8)	OECD Test Guideline 406 Guinea Pig Maximisation Test (GPMT)	guinea pig	non-sensitising

(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; Based on available data, the classification criteria are not met

Component	Test method	Test species / Duration	Study result
Methyl alcohol 67-56-1 (>99.8)	OECD Test Guideline 416	Rat / Inhalation 2 Generation	NOAEC = 1.3 mg/l (air)

(h) STOT-single exposure; Category 1

Results / Target organs Optic nerve, Central nervous system (CNS).

(i) STOT-repeated exposure; Based on available data, the classification criteria are not met

Target Organs None known.

(j) aspiration hazard; Based on available data, the classification criteria are not met

Other Adverse Effects The toxicological properties have not been fully investigated.

Symptoms / effects,both acute and delayed Inhalation of high vapor concentrations may cause symptoms like headache, dizziness, tiredness, nausea and vomiting.

11.2. Information on other hazards

Endocrine Disrupting Properties Assess endocrine disrupting properties for human health. This product does not contain any known or suspected endocrine disruptors.

SECTION 12: ECOLOGICAL INFORMATION

12.1. Toxicity

Ecotoxicity effects This product contains the following substance(s) which are hazardous for the environment. .

Component	Freshwater Fish	Water Flea	Freshwater Algae
Methyl alcohol	Pimephales promelas: LC50 > 10000 mg/L 96h	EC50 > 10000 mg/L 24h	
Formic acid	Leuciscus idus: LC50 = 46-100 mg/L/96h	EC50 = 34 mg/L/48h	EC50 = 25 mg/L/96h

Component	Microtox	M-Factor
Methyl alcohol	EC50 = 39000 mg/L 25 min EC50 = 40000 mg/L 15 min EC50 = 43000 mg/L 5 min	
Formic acid	EC50 = 46.7 mg/L/17h	

12.2. Persistence and degradability

No information available

Persistence Persistence is unlikely, based on information available.

Component	Degradability
Methyl alcohol 67-56-1 (>99.8)	DT50 ~ 17.2d >94% after 20d

12.3. Bioaccumulative potential

Bioaccumulation is unlikely

Component	log Pow	Bioconcentration factor (BCF)
Methyl alcohol	-0.74	<10 dimensionless
Formic acid	-1.9	0.22 dimensionless

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

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

12.6. Endocrine disrupting properties

Endocrine Disruptor Information	This product does not contain any known or suspected endocrine disruptors

12.7. Other adverse effects

Persistent Organic Pollutant	This product does not contain any known or suspected substance
Ozone Depletion Potential	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 Catalog, 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 flush to sewer. Can be landfilled or 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 SOLUTION
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 SOLUTION
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 SOLUTION
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. Maritime transport in bulk according to IMO instruments Not applicable, packaged goods

SECTION 15: REGULATORY INFORMATION

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

International Inventories

Europe (EINECS/ELINCS/NLP), China (IECSC), Taiwan (TCSI), Korea (KECL), Japan (ENCS), Japan (ISHL), Canada (DSL/NDSL), Australia (AICS), New Zealand (NZIoC), Philippines (PICCS). US EPA (TSCA) - Toxic Substances Control Act, (40 CFR Part 710)

Component	CAS No	EINECS	ELINCS	NLP	IECSC	TCSI	KECL	ENCS	ISHL
Methyl alcohol	67-56-1	200-659-6	-	-	X	X	KE-23193	X	X
Ammonium formate	540-69-2	208-753-9	-	-	X	X	KE-17235	X	X
Formic acid	64-18-6	200-579-1	-	-	X	X	KE-17233	X	X

Component	CAS No	TSCA	TSCA Inventory notification - Active-Inactive	DSL	NDSL	AICS	NZIoC	PICCS
Methyl alcohol	67-56-1	X	ACTIVE	X	-	X	X	X
Ammonium formate	540-69-2	X	ACTIVE	X	-	X	X	X
Formic acid	64-18-6	X	ACTIVE	X	-	X	X	X

Legend: X - Listed '-' - Not Listed **KECL** - NIER number or KE number (http://ncis.nier.go.kr/en/main.do)

Authorisation/Restrictions according to EU REACH

Component	CAS No	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	67-56-1	-	Use restricted. See item 69. (see link for restriction details) Use restricted. See item 75. (see link for restriction details)	-
Ammonium formate	540-69-2	-	-	-
Formic acid	64-18-6	-	Use restricted. See item 75. (see link for restriction details)	-

REACH links

https://echa.europa.eu/substances-restricted-under-reach

Seveso III Directive (2012/18/EC)

Component	CAS No	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	67-56-1	500 tonne	5000 tonne

Ammonium formate	540-69-2	Not applicable	Not applicable
Formic acid	64-18-6	Not applicable	Not applicable

Regulation (EC) No 649/2012 of the European Parliament and of the Council of 4 July 2012 concerning the export and import of dangerous chemicals
Not applicable

Contains component(s) that meet a 'definition' of per & poly fluoroalkyl substance (PFAS)?
Not applicable

Take note of Directive 98/24/EC on the protection of the health and safety of workers from the risks related to chemical agents at work .
Take note of Directive 2000/39/EC establishing a first list of indicative occupational exposure limit values

National Regulations

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

WGK Classification Water endangering class = 2 (self classification)

Component	Germany - Water Classification (AwSV)	Germany - TA-Luft Class
Methyl alcohol	WGK 2	Class I : 20 mg/m³ (Massenkonzentration)
Ammonium formate	WGK1	
Formic acid	WGK1	Class I : 20 mg/m³ (Massenkonzentration)

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

Component	Switzerland - Ordinance on the Reduction of Risk from handling of hazardous substances preparation (SR 814.81)	Switzerland - Ordinance on Incentive Taxes on Volatile Organic Compounds (OVOC)	Switzerland - Ordinance of the Rotterdam Convention on the Prior Informed Consent Procedure
Methyl alcohol 67-56-1 (>99.8)	Prohibited and Restricted Substances	Group I	
Formic acid 64-18-6 (0.05)	Prohibited and Restricted Substances		

15.2. Chemical safety assessment

Chemical Safety Assessment/Reports (CSA/CSR) are not required for mixtures

SECTION 16: OTHER INFORMATION

Full text of H-Statements referred to under sections 2 and 3
H301 - Toxic if swallowed
H311 - Toxic in contact with skin
H331 - Toxic if inhaled
H370 - Causes damage to organs
H225 - Highly flammable liquid and vapor
H226 - Flammable liquid and vapor
H314 - Causes severe skin burns and eye damage
H315 - Causes skin irritation

H318 - Causes serious eye damage
H319 - Causes serious eye irritation
H335 - May cause respiratory irritation

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
LC50 - Lethal Concentration 50%
NOEC - No Observed Effect Concentration
PBT - Persistent, Bioaccumulative, Toxic
TWA - Time Weighted Average
IARC - International Agency for Research on Cancer
Predicted No Effect Concentration (PNEC)
LD50 - Lethal Dose 50%
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
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 Compound)

Key literature references and sources for data
https://echa.europa.eu/information-on-chemicals
Suppliers safety data sheet, Chemadvisor - LOLI, Merck index, RTECS

Classification and procedure used to derive the classification for mixtures according to Regulation (EC) 1272/2008 [CLP]:

Physical hazards	On basis of test data
Health Hazards	Calculation method
Environmental hazards	Calculation method

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	03-Aug-2011
Revision Date	11-Oct-2023
Revision Summary	Not applicable.

This safety data sheet complies with Regulation UK SI 2019/758 and UK SI 2020/1577 as amended.

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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	REACH registration number	EC No
67-56-1	01-2119433307-44-0232	200-659-6

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 Methanol
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, 8a, 8b, 9, 15	ERC2 - Formulation of preparations	ES2-F1 Methanol
Laboratory use	SU3 - Industrial uses: Uses of substances as such or in preparations at industrial sites	10, 15	ERC4 - Industrial use of processing aids in processes and products, not becoming part of articles	ES3-L1 Methanol
Laboratory use	SU22 - Professional uses: Public domain (administration, education, entertainment, services, craftsmen)	10, 15	ERC8a - Wide dispersive indoor use of processing aids in open systems	ES4-L2 Methanol

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

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	23 hPa @ 20 °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 cm2
Technical conditions and measures to control dispersion from source towards the worker	Undertake operation under enclosed conditions
Additional good practice advice beyond	Use chemically resistant face shield, goggles or safety glasses with side shields when there

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

the REACH Chemical Safety Report	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				
Dermal		20 mg/kg bw/d		20 mg/kg bw/day
Inhalation	130 mg/m³	130 mg/m³	130 mg/m³	130 mg/m³

Process category(ies)	Exposure route	Predicted exposure level	Risk characterization ratio (RCR)
PROC1 - Use in closed process, no likelihood of exposure	Worker - dermal	0.034 mg/kg bw/d	<0.01
	Worker - inhalative, long-term - systemic	0.0133 mg/m³	< 0.1
	Worker - inhalative, short-term - systemic	0.0534 mg/m³	<0.01
	Worker - combined, long-term - systemic	0.036 mg/kg bw/d	< 0.1
	Worker - combined, short-term - systemic	0.0419 mg/kg bw/d	< 0.01
PROC2 - Use in closed, continuous process with occasional controlled exposure	Worker - dermal	0.274 mg/kg bw/d	< 0.01
	Worker - inhalative, long-term - systemic	3.34 mg/m³	< 0.1
	Worker - inhalative, short-term - systemic	13.35 mg/m³	< 0.1
	Worker - combined, long-term - systemic	0.751 mg/kg bw/d	< 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	0.137 mg/kg bw/d	< 0.01
	Worker - inhalative, long-term - systemic	6.675 mg/m³	< 0.1
	Worker - inhalative, short-term - systemic	26.7 mg/m³	0.2
	Worker - combined, long-term - systemic	1.09 mg/kg bw/d	< 0.1
	Worker - combined, short-term - systemic	3.95 mg/kg bw/d	0.212
PROC4 - Use in batch and other process (synthesis) where opportunity for exposure arises	Worker - dermal	1.37 mg/kg bw/d	< 0.1
	Worker - inhalative, long-term - systemic	33.38 mg/m³	0.256
	Worker - inhalative, short-term - systemic	53.4 mg/m³	0.41
	Worker - combined, long-term - systemic	7.511 mg/kg bw/d	0.394
	Worker - combined, short-term - systemic	9 mg/kg bw/d	0.479
PROC8a - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non dedicated facilities	Worker - dermal	2.743 mg/kg bw/d	0.137
	Worker - inhalative, long-term - systemic	33.38 mg/m³	0.256
	Worker - inhalative, short-term - systemic	66.75 mg/m³	0.513
	Worker - combined, long-term - systemic	7.51 mg/kg bw/d	0.393
	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	Worker - dermal	2.74 mg/kg bw/d	0.137

facilities			
	Worker - inhalative, long-term - systemic	10.0 mg/m³	< 0.1
	Worker - inhalative, short-term - systemic	20.02 mg/m³	0.15
	Worker - combined, long-term - systemic	4.17 mg/kg bw/d	0.214
	Worker - combined, short-term - systemic	5.6 mg/kg bw/d	0.291
PROC15 - Use as laboratory reagent	Worker - dermal	0.068 mg/kg bw/d	< 0.01
	Worker - inhalative, long-term - systemic	6.675 mg/m³	< 0.1
	Worker - inhalative, short-term - systemic	13.351 mg/m³	< 0.1
	Worker - combined, long-term - systemic	1.022 mg/kg bw/d	< 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	REACH registration number	EC No
67-56-1	01-2119433307-44-0232	200-659-6

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 Formulation, packing and re-packing of the substance and its mixtures in batch or continuous operations, including storage, materials transfers, mixing, tabletting, compression, pelletisation, extrusion, large and small scale packing, sampling, maintenance and associated laboratory activities.

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
PROC9 - Transfer of substance or preparation into small containers (dedicated filling line, including weighing)
PROC15 - Use as laboratory reagent

Environmental release category(ies) ERC2 - Formulation of preparations (mixtures)
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	23 hPa @ 20 °C

Covers concentrations up to 100 %

Section 2.1 - Control of environmental exposure

Environmental release category(ies)
ERC2 - Formulation of preparations (mixtures)
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 cm2
Technical conditions and measures to control dispersion from source towards the worker	Undertake operation under enclosed conditions
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

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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

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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

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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

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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%
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

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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	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
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Process category(ies)	PROC9 - Transfer of substance or preparation into small containers (dedicated filling line, including weighing)
Covers concentrations up to	100%
Exposure duration	>4 hours (default)
Use frequency	5 days per week
Indoor/Outdoor use	Indoor
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 suitable gloves tested to EN374 (APF 5) 80%

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
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Control of consumer exposure Not intended for consumer use

Section 3 - Exposure estimation

Environment

Environmental release category(ies)

ERC2 - Formulation of preparations (mixtures)

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				
Dermal		20 mg/kg bw/d		20 mg/kg bw/day
Inhalation	130 mg/m³	130 mg/m³	130 mg/m³	130 mg/m³

Process category(ies)	Exposure route	Predicted exposure level	Risk characterization ratio (RCR)
PROC1 - Use in closed process, no likelihood of exposure	Worker - dermal	0.0343 mg/kg bw/d	<0.01
	Worker - inhalative, short-term - systemic	0.0534 mg/m³	<0.01
	Worker - inhalative, long-term - systemic	0.0133 mg/m³	< 0.01
	Worker - combined, short-term - systemic	0.0419 mg/kg bw/d	< 0.01
	Worker - combined, long-term - systemic	0.036 mg/kg bw/d	< 0.01
PROC2 - Use in closed, continuous process with occasional controlled exposure	Worker - dermal	0.274 mg/kg bw/d	0.014
	Worker - inhalative, short-term - systemic	13.35 mg/m³	0.103
	Worker - inhalative, long-term - systemic	3.34 mg/m³	0.025
	Worker - combined, short-term - systemic	2.18 mg/kg bw/d	0.116
	Worker - combined, long-term - systemic	0.751 mg/kg bw/d	0.039
PROC3 - Use in closed batch process (synthesis or formulation)	Worker - dermal	0.137 mg/kg bw/d	< 0.01
	Worker - inhalative, short-term - systemic	26.7 mg/m³	0.205
	Worker - inhalative, long-term - systemic	6.675 mg/m³	0.051
	Worker - combined, short-term - systemic	3.95 mg/kg bw/d	0.212
	Worker - combined, long-term - systemic	1.09 mg/k bw/d	0.058
PROC4 - Use in batch and other process (synthesis) where opportunity for exposure arises	Worker - dermal	1.37 mg/m³	0.068
	Worker - inhalative, short-term - systemic	53.4 mg/m³	0.41
	Worker - inhalative, long-term - systemic	13.35 mg/m³	0.103
	Worker - combined, short-term - systemic	9 mg/kg bw/d	0.479
	Worker - combined, long-term - systemic	3.279 mg/kg bw/d	0.17
PROC8a - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non dedicated facilities	Worker - dermal	2.743 mg/kg bw/d	0.137
	Worker - inhalative, short-term - systemic	66.75 mg/m³	0.513
	Worker - inhalative, long-term - systemic	33.38 mg/m³	0.128
	Worker - combined, short-term - systemic	12.28 mg/kg bw/d	0.65
	Worker - combined, long-term - systemic	7.51 mg/kg bw/d	0.39
PROC8b - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated	Worker - dermal	2.74 mg/kg bw/d	0.137

facilities			
	Worker - inhalative, short-term - systemic	20.02 mg/m³	0.154
	Worker - inhalative, long-term - systemic	10.0 mg/m³	0.077
	Worker - combined, short-term - systemic	5.6 mg/kg bw/d	0.29
	Worker - combined, long-term - systemic	4.17 mg/kg bw/d	0.214
PROC9 - Transfer of substance or preparation into small containers (dedicated filling line, including weighing)	Worker - dermal	1.37 mg/kg dw/d	0.068
	Worker - inhalative, short-term - systemic	53.40 mg/m³	0.41
	Worker - inhalative, long-term - systemic	26.70 mg/m³	0.205
	Worker - combined, short-term - systemic	9 mg/kg bw/d	0.48
	Worker - combined, long-term - systemic	5.19 mg/kg bw/d	0.274
PROC15 - Use as laboratory reagent	Worker - dermal	0.068 mg/kg bw/d	< 0.01
	Worker - inhalative, short-term - systemic	13.351 mg/m³	0.102
	Worker - inhalative, long-term - systemic	6.675 mg/m³	0.051
	Worker - combined, short-term - systemic	1.976 mg/kg bw/d	0.106
	Worker - combined, long-term - systemic	1.022 mg/kg bw/d	0.055

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	REACH registration number	EC No
67-56-1	01-2119433307-44-0232	200-659-6

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 Laboratory reagent and solvent involving transfer from larger to small containers and vice versa.

Sector(s) of use SU3 - Industrial uses: Uses of substances as such or in preparations at industrial sites

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 23 hPa @ 20 °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)	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 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

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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

Route of exposure	Acute effects (local)	Acute effects (systemic)	Chronic effects (local)	Chronic effects (systemic)
Oral				
Dermal		20 mg/kg bw/d		20 mg/kg bw/day

Inhalation	130 mg/m³	130 mg/m³	130 mg/m³	130 mg/m³

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	0.22
	Worker - inhalative, long-term - systemic	26.7 mg/m³	0.205
	Worker - combined, long-term - systemic	8.2 mg/kg bw/d	0.425
	Worker - dermal, short-term - systemic	4.39 mg/kg bw/d	0.22
	Worker - inhalative, short-term - systemic	53.4 mg/m³	0.411
	Worker - combined, short-term - systemic	12.02 mg/kg bw/d	0.63
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/m³	0.051
	Worker - combined, long-term - systemic	1.022 mg/kg bw/d	0.055
	Worker - dermal, short-term - systemic	0.0685 mg/kg bw/d	< 0.01
	Worker - inhalative, short-term - systemic	13.351 mg/m³	0.102
	Worker - combined, short-term - systemic	1.976 mg/kg bw/d	0.106

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	REACH registration number	EC No
67-56-1	01-2119433307-44-0232	200-659-6

Exposure scenario

ES4 Laboratory uses (Professional) - ES4-L2 METHANOL

Section 1 - Identification of the use

Main user group Professional uses: Public domain (administration, education, entertainment, services, craftsmen)

Type Worker

Processes, tasks, activities covered Laboratory reagent and solvent involving transfer from larger to small containers and vice versa.

Sector(s) of use 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) ERC8a - Wide dispersive indoor use of processing aids in open systems

Section 2 - Operational Conditions and Risk Management Measures

Product characteristics

Physical State Liquid
pH 7-8
Water Solubility Miscible
Vapor Pressure 23 hPa @ 20 °C
Covers concentrations up to 100 %

Section 2.1 - Control of environmental exposure

Environmental release category(ies)
ERC8a - Wide dispersive indoor use of processing aids in open systems

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)	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 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

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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 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

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Control of consumer exposure Not intended for consumer use

Section 3 - Exposure estimation

Environment
Environmental release category(ies)
ERC8a - Wide dispersive indoor use of processing aids in open systems

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				
Dermal		20 mg/kg bw/d		20 mg/kg bw/day
Inhalation	130 mg/m³	130 mg/m³	130 mg/m³	130 mg/m³

Process category(ies)	Exposure route	Predicted exposure level	Risk characterization ratio (RCR)
PROC10 - Roller application or brushing	Worker - dermal	0.284 mg/kg bw/d	0.014
	Worker - inhalative, long-term - systemic	33.4 mg/m³	0.257
	Worker - combined, long-term - systemic	5.04 mg/kg bw/d	0.27
	Worker - inhalative, short-term - systemic	66.75 mg/m³	0.514
	Worker - combined, short-term - systemic	9.811 mg/kg bw/d	0.527
PROC15 - Use as laboratory reagent	Worker - dermal	0.068 mg/kg bw/d	< 0.01
	Worker - inhalative, long-term - systemic	13.35 mg/m³	0.102
	Worker - combined, long-term - systemic	1.98 mg/kg bw/d	0.106
	Worker - inhalative, short-term - systemic	26.7 mg/m³	0.205
	Worker - combined, short-term - systemic	3.88 mg/kg bw/d	0.209

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