

SDS Reference E14589
Version No. 1
Revision Date -
Origination Date 01/12/2010

Ecofuel SpA

Safety Data Sheet



CLASSIFIED IN ACCORDANCE WITH CLP/GHS

Product Name METHANOL

SECTION 1. IDENTIFICATION OF SUBSTANCE / MIXTURE AND COMPANY / UNDERTAKING

Product Identifier METHANOL
CAS No. 67-56-1 EC no. 200-659-6 Index no. 603-001-00-X

Synonym (s) Methyl alcohol, wood alcohol

REACH Registration Number **01-2119433307-44-0045**

Relevant identified uses and uses advised against
Industrial and Professional:
Manufacture, intermediate, process chemical, formulation and (re)packing, fuel, cleaning agent, laboratory reagent, wastewater treatment, oilfield drilling and production operations. (Exposure Scenarios 1 – 11)
ES1 Manufacture of the substance/Use as an intermediate/Use as an process chemical
ES2: Distribution of the substance
ES3: Formulation and (re)packing of substance and mixtures
ES4: Use as a fuel in industrial settings
ES5: Use as a fuel in professional settings
ES6: Industrial use in cleaning agents
ES7: Professional use in cleaning agents
ES8: Use as a laboratory reagent in industrial settings
ES9: Use as a laboratory reagent in professional settings
ES10: Industrial use as wastewater treatment chemical
ES11: Professional use in oilfield drilling and production operations
Consumer:
Cleaning agents, de-icers (liquid and spray), fuels (indoors and outdoors). (Exposure Scenarios 12 – 14b)
ES12: Consumer use of cleaning agents and de-icers (liquid products)
ES13: Consumer use of cleaning agents and de-icers (spray products)
ES14a: Consumer use of fuels indoors (Domestic/hobby use e.g in model engines, fuel cells, fondue sets)
ES14b: Consumer use of fuels outdoors (gasoline additive)
Avoid any use:
None reported.

Details of the supplier ECOFUEL SPA
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SECTION 2. HAZARDS IDENTIFICATION

Classification (EC 1272/2008)
 2.6 — Flammable liquids, Hazard Category 2
 3.8 — Specific target organ toxicity — single exposure, Hazard Category 1
 3.1 — Acute toxicity (inhal.), Hazard Category 3
 3.1 — Acute toxicity (dermal), Hazard Category 3
 3.1 — Acute toxicity (oral), Hazard Category 3

Classification (67/548/EEC)
 HIGHLY FLAMMABLE R11
 TOXIC R23/24/25, 39/23/24/25

Label Elements:



Signal Word

DANGER

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

Precautionary Statements
 P210 Keep away from heat/sparks/open flames/hot surfaces. — No smoking.
 P233 Keep container tightly closed.
 P280 Wear protective gloves/protective clothing.
 P307+P311 IF exposed: Call a POISON CENTER or doctor/physician.

Supplemental information Not applicable

Other hazards Risk of blindness if product is swallowed. Not classified as PBT or vPvB, based on the assessment carried out according to Annex XIII of REACH Regulation.

SECTION 3. COMPOSITION / INFORMATION ON INGREDIENTS

Chemical name	CAS No	EC No	REACH Reg No		Classification	Conc'n %
*Methanol	67-56-1	200-659-6	01-2119433307-44-0045	Dgr	GHS02 H225 2.6/2 GHS06 H331 3.1/3 GHS08 H311 3.1/3 H301 3.1/3 H370 3.8/1	>99.8
					F, T R11, 23/24/25, 39/23/24/25	

Further information *THE SUBSTANCE HAS AN OCCUPATIONAL EXPOSURE LIMIT.
 Key to abbreviations, hazard statements and risk phrases in Section 16

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SECTION 4. FIRST AID MEASURES

Description of first aid measures	Take measures to avoid further contamination or contact. Remove contaminated clothing immediately, to be disposed of or washed before reuse.
Inhalation	If inhaled, provide fresh air, warmth, and rest. SEEK MEDICAL ADVICE.
Skin contact	Immediately clean areas of skin affected with soap and plenty of water and SEEK MEDICAL ADVICE.
Eye contact	In case of contact with eyes, rinse immediately with plenty of water until irritation subsides. If necessary (e.g. irritation persists), consult an eye specialist/ophthalmologist.
Ingestion	Allow the patient to vomit on his/her own accord. Beware of aspiration if vomiting does occur. Give copious water to drink. SEEK MEDICAL ADVICE. Show the product label or this safety data sheet.
Most important symptoms and effects, both acute and delayed	Irritation to eyes, skin, upper respiratory system; headache, drowsiness, dizziness, nausea, vomiting; visual disturbance, optic nerve damage (blindness), dermatitis
Indication of any immediate medical attention and special treatment needed	If swallowed, obtain immediate medical attention.

SECTION 5. FIRE FIGHTING MEASURES

General hazard	THE PRODUCT IS A HIGHLY FLAMMABLE LIQUID
Extinguishing media	To suit local surroundings (e.g. water spray, carbon dioxide, foam, chemical powder)
Extinguishing media not to be used	Full water jet
Special hazards arising from the substance or mixture	Decomposition products released in a fire, (e.g. oxides of carbon), should be considered toxic if inhaled. The formation of explosive air/vapour mixtures is possible.
Advice for fire-fighters	Wear self-contained breathing apparatus and a chemical resistant suit. Cool endangered containers with water (to prevent container explosion).

SECTION 6. ACCIDENTAL RELEASE MEASURES

Personal precautions, protective equipment and emergency procedures	Remove all sources of ignition - NO SMOKING! Adhere to personal protective measures. Shut off source of product, if possible.
Environmental precautions	Do not allow to get into waste water or waterways; if this occurs, inform the relevant water authority at once.
Methods and materials for containment and cleaning up	Take up with absorbent material, e.g. sand, sawdust, using sparkproof equipment, into tightly closable containers. Label container and dispose of as prescribed. Ventilate area.
Reference to other sections	Section 8 – personal protective measures Section 13 – disposal of waste

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SECTION 7. HANDLING AND STORAGE

Precautions for safe handling	Handle in accordance with good hygiene and safety practice. (See Section 8) Remove all sources of ignition - NO SMOKING! Vapours may form explosive mixtures in air - earth electrical equipment.
Conditions for safe storage, including any incompatibilities	Ensure adequate ventilation of the storage area. Keep containers tightly closed, cool and dry. Electrical equipment and fittings must comply with local fire prevention regulations for this class of product. Use the correct grounding procedures. Prevent the build-up of static charges Store away from acids, acid chlorides, acid anhydrides, alkali metals, oxidising agents, reducing agents. Do not use containers of aluminium, copper or copper alloys, zinc or zinc-coated steel.
Specific end use(s)	Industrial and Professional: Consult Exposure Scenarios 1 - 11, as appropriate. Consumer: Consult Exposure Scenarios 12 – 14 a and b, as appropriate. ES1: Manufacture of the substance/Use as an intermediate/Use as an process chemical ES2: Distribution of the substance ES3: Formulation and (re)packing of substance and mixtures ES4: Use as a fuel in industrial settings ES5: Use as a fuel in professional settings ES6: Industrial use in cleaning agents ES7: Professional use in cleaning agents ES8: Use as a laboratory reagent in industrial settings ES9: Use as a laboratory reagent in professional settings ES10: Industrial use as wastewater treatment chemical ES11: Professional use in oilfield drilling and production operations ES12: Consumer use of cleaning agents and de-icers (liquid products) ES13: Consumer use of cleaning agents and de-icers (spray products) ES14a: Consumer use of fuels indoors (Domestic/hobby use e.g in model engines, fuel cells, fondue sets) ES14b: Consumer use of fuels outdoors (gasoline additive)

SECTION 8. EXPOSURE CONTROLS / PERSONAL PROTECTION

Control parameters	Monitoring of the workplace should be considered in accordance with Community Exposure Limits or other data as indicated below.			
LTEL (8 hour TWA):	200 ppm	266 mg/m ³	WEL EH40 (2005)	
STEL (15 min):	250 ppm	333 mg/m ³	WEL EH40 (2005)	
TLV (8 hour TWA):	200 ppm	260 mg/m ³	PEL OSHA	
TLV-STEL (15 min):	200 ppm	250 mg/m ³	ACGIH (2009)	
LTEL (8 hour TWA):	- ppm	40 mg/kg	DNEL Acute - systemic effects, dermal	
LTEL (8 hour TWA):	- ppm	260 mg/m ³	DNEL Acute - systemic effects, inhalation	
Aqua (freshwater)		154 mg/l	PNEC	
Aqua (marine water):		15.4 mg/l	PNEC	
Aqua (intermittent releases)		1540 mg/l	PNEC	
Sediment (pure water)		570.4 mg/kg	PNEC (extrapolated)	

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SECTION 8. EXPOSURE CONTROLS / PERSONAL PROTECTION

Engineering controls	Provide local exhaust ventilation. Take measures against the build up of electrostatic charges.
Personal protection	Observe normal standards for handling chemicals. Do not breathe vapour. Avoid eye and skin contact. Wash hands before breaks and after work. Do not eat, drink or smoke in the working area. Wear personal protective equipment appropriate to the task (see below).
Eye protection	Chemical safety goggles.
Skin protection	Nitrile or butyl rubber gloves. Protective overalls.
Respiratory protection	Respirator or air fed visor (if ventilation is insufficient).
Other personal protection	Eye wash station.
Environmental exposure controls	Do not allow to get into waste water or waterways.

SECTION 9. PHYSICAL AND CHEMICAL PROPERTIES

Physical form	Liquid
Colour	Colourless
Odour	Pungent
Odour Threshold	10 ppm – 20,000 ppm (Meditext, 2003, AIHA, 2002)
Molecular weight	32.04
Molecular formula	CH ₃ OH
pH	Not applicable
Melting pt / range	-97.8°C
Boiling pt / range	64.7°C
Flash point	9.7°C @ 101.3kPa (closed cup)
Relative Evaporation Rate (n-Butyl Acetate = 1)	5.9
General Flammability	HIGHLY FLAMMABLE
Flammability/explosive limits	Lower Explosive Limit: 7.3% (v/v) Upper Explosive Limit: 37% (v/v)
Vapour pressure	97.68 mmHg @ 20°C
Vapour Density	1.1
Relative Density	0.78 – 0.80 @ 20°C
Solubility	Miscible with water Miscible with most organic solvents.

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SECTION 9. PHYSICAL AND CHEMICAL PROPERTIES

Partition coefficient (log P or log K n-octanol / water) -0.77
Auto-ignition temperature 455°C @ 101.3kPa
Decomposition temperature Not available
Viscosity 0.544 – 0.590 mPa s @ 25°C
Explosive properties Not applicable, based on structure
Oxidising properties Not applicable, based on structure
Other information None reported

SECTION 10. STABILITY & REACTIVITY

Reactivity May react with some plastics, rubber, and coatings.
Chemical stability Stable under normal conditions of handling and storage.
Possibility of hazardous reactions May react explosively with sodium methoxide in chloroform and diethyl zinc.
 May react violently with alkyl aluminum salts, acetyl bromide, sodium hydroxide in chloroform, cyanuric chloride, nitric acid.
 May react vigorously with oxidising agents.
Conditions to avoid Heat, sources of ignition.
Incompatible materials Strong acids, acid chlorides, acid anhydrides, alkali metals, oxidising agents, reducing agents.
Hazardous decomposition products None known.

SECTION 11. TOXICOLOGICAL INFORMATION

Information on toxicological effects Methanol can induce serious irreversible effects upon single exposure by oral, dermal and inhalation routes.
 Target organs: neurologic: eyes (retina, optic nerve), brain (multiple sections)
 Target organs: cardiovascular / haematological: heart; neurologic: digestive: liver.

Acute toxicity - oral LD₅₀ rat (oral) >1187-2769 mg/kg rat (Sprague-Dawley) male/female, oral: gavage (BASF-standard test 1975)

Acute toxicity - inhalation LD₅₀ rat 128200 mg/m³/4H rat (Sprague-Dawley) male/female, inhalation: vapour (nose/head only) (BASF-standard test 1980)

Acute toxicity - dermal LD₅₀ rabbit ca. 17100 mg/kg No information on test method, Rowe and McCollister (1981)

Skin corrosion/irritation Methanol is not irritating to the skin.
 Rabbit (Vienna White) Not irritating. (BASF-standard test 1975)
 Coverage: occlusive (shaved)
 Vehicle: unchanged (no vehicle)

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SECTION 11. TOXICOLOGICAL INFORMATION

Serious eye damage/irritation	Methanol is not irritating to the eyes.		
	Rabbit	Not irritating.	Vehicle: unchanged (no vehicle) (BASF-standard test 1975)
Respiratory sensitisation	No evidence of respiratory sensitisation.		
Skin sensitisation	A guinea pig maximization assay gave no evidence of contact sensitisation after induction and challenge doses of 50%.		
	Guinea pig maximization test.	Not sensitising	Equivalent or similar to OECD Guideline 406 (Skin Sensitisation)
	Induction: intradermal and epicutaneous.		
CMR effects	<p>Carcinogenicity: data conclusive, not sufficient for classification. Carcinogenicity studies indicated no evidence of a carcinogenic potential in rats and mice exposed to methanol.</p> <p>Mutagenicity: data conclusive, not sufficient for classification. Based on the negative results in the in vivo studies, methanol does not seem to be mutagenic.</p> <p>Reproductive toxicity: data conclusive, not sufficient for classification. No impairment of fertility and reproductive performance was found in male and female rats (parent and daughter generations) exposed to methanol (NEDO, 1987). Developmental toxicity has been observed in many rodent studies, which resulted in a variety of effects in offspring due to prenatal and/or postnatal dosing.</p>		
Single dose toxicity	The minimal acute methanol dose to humans that can result in death is considered to be 300 to 1000 mg/kg by ingestion. The minimum dose causing permanent visual defects is unknown. (IPCS/WHO (1997))		
Repeated dose toxicity	LOAEL: 2340 mg/kg bw/day NOAEC: 13 mg/m ³ air		
Exposure - oral	Monkey, male, subacute (oral: gavage) 2340 mg/kg bw (actual ingested)	LOAEL: 2340 mg/kg bw/day (actual dose received) (male) (mortality)	No information on test method, Rao, K.R. et al. (1977)
Exposure - inhalation	Rat, male/female, chronic (inhalation: vapour) (whole body)	NOEC: 0.13 mg/L air (nominal) (male/female) LOAEC: 1.3 mg/L air (nominal) (male/female) (body weight and food consumption; organ/body weight ratio; swelling of the chromophobic cells of the pituitary)	Equivalent or similar to OECD Guideline 453 (Combined Chronic Toxicity / Carcinogenicity Studies)
Exposure - dermal	This information is not available.		
Adverse health effects and symptoms	The symptoms and signs of methanol poisoning, which may not appear until after an asymptomatic period of about 12 to 24 hours, include visual disturbances, nausea, abdominal and muscle pain, dizziness, weakness and disturbances of consciousness ranging from coma to clonic seizures. Visual disturbances generally develop between 12 and 48 h after methanol ingestion and range from mild photophobia and misty or blurred vision to markedly reduced visual acuity and complete blindness. In extreme cases death results. (IPCS/WHO (1997))		
Other information	LOAEL (ocular toxicity) intraperitoneal = 5000 mg/kg bw for rats (no NOAEL identified)		

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SECTION 13. DISPOSAL CONSIDERATIONS

Waste treatment methods Avoid sources of ignition and use appropriate control measures (see Section 8)
Do not allow to get into waste water or waterways.
Dispose of waste product in accordance with national (i.e. Hazardous Waste Regulations) and local authority regulations.
Caution - used containers may contain highly flammable vapour. Do not cut, weld, bore, burn or incinerate empty containers, unless they have been cleaned and declared safe. Do not incinerate closed containers.
Treat empty containers in the same way as the product or if possible wash out thoroughly and recycle.

SECTION 14. TRANSPORT INFORMATION

Land transport (ADR/RID)

UN number 1230
UN proper shipping name METHANOL (METHYL ALCOHOL)
Transport hazard class(es) 3, 6.1
Packing group II
Environmental hazards The product is not classified as environmentally hazardous.
Special provisions None.
Emergency action code 2WE
Hazard Identification Number 336

Marine transport (IMDG)

UN number 1230
UN proper shipping name METHANOL (METHYL ALCOHOL)
Transport hazard class(es) 3, 6.1
Packing group II
Environmental hazards The product is not classified as environmentally hazardous or a marine pollutant.
Special provisions

Air transport (ICAO/IATA)

UN number 1230
UN proper shipping name METHANOL (METHYL ALCOHOL)
Transport hazard class(es) 3, 6.1
Packing group II
Environmental hazards The product is not classified as environmentally hazardous.
Special provisions None.

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SECTION 15. REGULATORY INFORMATION

Safety, health and environmental regulations/legislation specific for product

Classification, Labelling and Packaging Regulation (EC) 1272/2008
 Control of major accident hazards involving dangerous substances 96/82/EC

Chemical Safety Assessment

A Chemical Safety Assessment has been carried out.

SECTION 16. OTHER INFORMATION

Date of revision Not applicable

Reason for revision Not applicable

Sections revised Not applicable

Key to abbreviations and acronyms

67/548/EEC	EU Dangerous Substances Directive
ACGIH	American Conference of Governmental Industrial Hygienists, Inc. (US)
ADR	European agreement governing the international carriage of dangerous goods by road
BCF	Bioconcentration Factor
CAS No	Chemical Abstracts Service Registry Number
CLP	Classification, Labelling and Packaging Regulation (EC) 1272/2008
CMR	Carcinogen, Mutagen, Reprotoxin
DGEAC	Dangerous Goods Emergency Action Code List 2009
DNEL	Derived No Effect Level
EC ₅₀	Half maximal effective concentration
EC No	European Inventory of Chemical Substances number
EH40 (2005)	HSE's list of Workplace Exposure Limits, as updated and amended
GHS	Globally Harmonised System for classification and labelling chemicals
GHS02	Pictogram – Flame
GHS06	Pictogram – Skull and crossbones
GHS08	Pictogram – Health hazard
HSE	Health and Safety Executive (UK)
kPa	kilopascal
LC ₅₀	Concentration of a material in air that kills 50% of the test subjects
LOAEL	Lowest Observed Adverse Effect Level
mg/kg	milligrams per kilogram
mg/m ³	milligrams per cubic metre
mPa s	millipascal second
NOEL	No Observed Effect Level
OSHA	Occupational Health & Safety Administration (US)
PBT	Persistent, Bioaccumulative and Toxic
PEL	Permissible Exposure Limit
PNEC	Predicted No Effect Concentration
ppm	Parts per million
REACH	Registration, Evaluation and Authorisation of Chemicals Regulation (EC) 1907/2006
STEL	Short Term Exposure Limit

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SECTION 16. OTHER INFORMATION

TLV Threshold Limit Value
TWA Time Weighted Average
vPvB very Persistent, very Bioaccumulative
WEL Workplace Exposure Limit

Sources of data REACH Registration Dossier, ADR, DGEAC, EH40, ACGIH, OSHA.

Methods used to evaluate information used for classification REACH Registration Dossier and Chemical Safety Report.

Key to Hazard Statements in Section 3

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

Key to Risk Phrases in Section 3

R11	Highly flammable.
R23/24/25	Toxic by inhalation, in contact with skin and if swallowed.
R39/23/24/25	Toxic: danger of very serious irreversible effects through inhalation, in contact with skin and if swallowed.

This information is based on our present state of knowledge and is intended to describe our products from the point of view of the safety requirements. It should not be construed as guaranteeing specific properties.

Data sheet prepared by Environmental Science Limited.

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EXPOSURE SCENARIO 1

Section 1	Exposure Scenario Title
Title	Manufacture of Methanol; CAS RN 67-56-1
Use Descriptor	Sector of Use: Industrial (SU3, 8, 9)
	Process Categories: PROC1, PROC2, PROC3, PROC4, PROC8a, PROC8b, PROC15
	Environmental Release Categories: ERC1, ERC4, ERC6a, ERC6b
Processes, tasks, activities covered	Manufacture of Methanol or use as an intermediate or process chemical or extraction agent. Includes recycling/ recovery, material transfers, storage, sampling, associated laboratory activities, maintenance and loading (including marine vessel/barge, road/rail car and bulk container).
Section 2	Operational conditions and risk management measures
Field for additional statements to explain scenario if required.	
Section 2.1	Control of worker exposure
Product characteristics	
Physical form of product	Liquid, vapour pressure > 10 kPa [OC5].
Concentration of substance in product	
Amounts used	Not applicable
Frequency and duration of use	Covers daily exposures up to 8 hours (unless stated differently) [G2]
Human factors not influenced by risk management	Not applicable
Other Operational Conditions affecting worker exposure	Assumes use at not > 20oC above ambient [G15]; Assumes a good basic standard of occupational hygiene is implemented [G1].
Contributing Scenarios	Risk Management Measures {phrases between brackets provide additional, non-mandatory risk management advice}.
General exposures (closed systems) [CS15].	No specific measures identified [E118]. {Provide a good standard of general ventilation (not less than 3 to 5 air changes per hour) [E11]}{Wear suitable gloves tested to EN374 [PPE15]}.
General exposures (closed systems) [CS15]. With sample collection [CS56]. With occasional controlled exposure [CS137]	Provide extract ventilation to points where emissions occur [E54]. {Wear suitable gloves tested to EN374 [PPE15]}.
General exposures (closed systems) [CS15]. Use in contained batch processes [CS37].	Provide extract ventilation to points where emissions occur [E54]. {Wear suitable gloves tested to EN374 [PPE15]}.
General exposures (open systems) [CS16]. Batch process [CS55]. With sample collection [CS56].	Provide extract ventilation to points where emissions occur [E54]. {Wear suitable gloves tested to EN374 [PPE15]}.
Process sampling [CS2].	Provide extract ventilation to points where emissions occur [E54]. {Use a sampling system designed to control exposure} {Ensure operatives are trained to minimise exposures [E119]}. {Wear suitable gloves tested to EN374 [PPE15]}.
Laboratory activities [CS36].	Handle in a fume cupboard or under extract ventilation [E83].{Wear suitable gloves tested to EN374 [PPE15]}.
Bulk transfers [CS14]. (open systems) [CS108]With potential for aerosol generation [CS138].	Ensure material transfers are under containment or extract ventilation [E66]. {Clear transfer lines prior to de-coupling [E39]}. {Wear suitable gloves tested to EN374 [PPE15]}.

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Bulk transfers [CS14]. (closed systems) [CS107];	Ensure material transfers are under containment or extract ventilation [E66]. {Clear transfer lines prior to de-coupling [E39]}. {Wear suitable gloves tested to EN374 [PPE15]}.
Equipment cleaning and maintenance [CS39].	Drain down and flush system prior to equipment break-in or maintenance [E55]. {Provide a good standard of general ventilation (not less than 3 to 5 air changes per hour) } {Clear spills immediately [C&H13]}. {Wear suitable gloves tested to EN374 [PPE15]}. {Retain drain downs in sealed storage pending disposal or for subsequent recycle [ENVT4]}.
Storage [CS67]With occasional controlled exposure [CS137]	Provide extract ventilation to points where emissions occur [E54]. {Avoid dip sampling [E42]}. {Provide a good standard of general ventilation (not less than 3 to 5 air changes per hour) } {Wear suitable gloves tested to EN374 [PPE15]}.
Section 2.2	Control of environmental exposure
	No exposure assessment presented for the environment. [G40]
Section 3	Exposure Estimation
3.1. Health	The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated [G21]
Section 4	Guidance to check compliance with the Exposure Scenario
4.1. Health	Predicted exposures are not expected to exceed the DN(M)EL when the Risk Management Measures/Operational Conditions outlined in Section 2 are implemented [G22].
	Where other Risk Management Measures/Operational Conditions are adopted, then users should ensure that risks are managed to at least equivalent levels [G23].

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EXPOSURE SCENARIO 2

Section 1	Exposure Scenario Title
Title	Distribution of Methanol; CAS RN 67-56-1
Use Descriptor	Sector of Use: Industrial (SU3, SU8, SU9)
	Process Categories: PROC1, PROC2, PROC3, PROC4, PROC8a, PROC8b, PROC9, ?PROC15?
	Environmental Release Categories: ERC1 (loading) ERC2 (repacking)
Processes, tasks, activities covered	Loading (including marine vessel/barge, rail/road car and IBC loading) and repacking (including drums and small packs) of substance, including its distribution and associated laboratory activities
Section 2	Operational conditions and risk management measures
Field for additional statements to explain scenario if required.	
Section 2.1	Control of worker exposure
Product characteristics	
Physical form of product	Liquid, vapour pressure > 10 kPa [OC5].
Concentration of substance in product	Covers percentage substance in the product up to 100 % (unless stated differently) [G13].
Amounts used	Not applicable
Frequency and duration of use	Covers daily exposures up to 8 hours (unless stated differently) [G2]
Human factors not influenced by risk management	Not applicable
Other Operational Conditions affecting worker exposure	Assumes use at not > 20oC above ambient [G15]; Assumes a good basic standard of occupational hygiene is implemented [G1].
Contributing Scenarios	Risk Management Measures {phrases between brackets provide additional, non-mandatory risk management advice}.
General exposures (closed systems) [CS15].	No specific measures identified [E18]. {Wear suitable gloves tested to EN374 [PPE15]}.
General exposures (closed systems) [CS15]. ; With sample collection [CS56]. With occasional controlled exposure [CS140]	Provide extract ventilation to points where emissions occur [E54]. {Wear suitable gloves tested to EN374 [PPE15]}.
General exposures (closed systems) [CS15]. Use in contained batch processes [CS37].	Provide extract ventilation to points where emissions occur [E54]. {Wear suitable gloves tested to EN374 [PPE15]}.
General exposures (open systems) [CS16]. Batch process [CS55]. ; With sample collection [CS56].	Provide extract ventilation to points where emissions occur [E54]. {Wear suitable gloves tested to EN374 [PPE15]}.
Product sampling (CS137)	Provide extract ventilation to points where emissions occur [E54]. {Wear suitable gloves tested to EN374 [PPE15]}.
Laboratory activities [CS36].	Provide extract ventilation to points where emissions occur [E54]. {Handle in a fume cupboard or under extract ventilation [E83]}. {Wear suitable gloves tested to EN374 [PPE15]}.
Bulk transfers [CS14]. ; (closed systems) [CS107]	Ensure material transfers are under containment or extract ventilation [E66]. {Ensure operation is undertaken outdoors [E69]}. {Clear transfer lines prior to de-coupling [E39]} {Wear suitable gloves tested to EN374 [PPE15]}.
Bulk transfers [CS14]. ; (open systems) [CS108]	Ensure material transfers are under containment or extract ventilation [E66]. {Ensure operation is undertaken outdoors [E69]}. {Clear transfer lines prior to de-coupling [E39]} {Wear suitable gloves tested to EN374 [PPE15]}.

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Drum and small package filling [CS6].	Provide extract ventilation to points where emissions occur [E54]. {Put lids on containers immediately after use [E9]}. ; {Clear spills immediately [C&H13]}. {Wear suitable gloves tested to EN374 [PPE15]}.
Equipment cleaning and maintenance [CS39].	Drain down and flush system prior to equipment break-in or maintenance [E55].{Transfer via enclosed lines [E52]}. {Wear suitable gloves tested to EN374 [PPE15]}. {Retain drain downs in sealed storage pending disposal or for subsequent recycle [ENV4]}.
Storage [CS67]With occasional controlled exposure [CS140]	Provide extract ventilation to points where emissions occur [E54]. {Wear suitable gloves tested to EN374 [PPE15]}.
Section 2.2	Control of environmental exposure
	No exposure assessment presented for the environment. [G40]
Section 3	Exposure Estimation
3.1. Health	The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated [G21]
Section 4	Guidance to check compliance with the Exposure Scenario
4.1. Health	Predicted exposures are not expected to exceed the DN(M)EL when the Risk Management Measures/Operational Conditions outlined in Section 2 are implemented [G22].
	Where other Risk Management Measures/Operational Conditions are adopted, then users should ensure that risks are managed to at least equivalent levels [G23].

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Product Name	METHANOL
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EXPOSURE SCENARIO 3

Section 1	Exposure Scenario Title
Title	Formulation & (re)packaging of substances and mixtures of Methanol; CAS RN 67-56-1
Use Descriptor	Sector of Use: Industrial (SU3, SU10)
	Process Categories: PROC1, PROC2, PROC3, PROC4, ?PROC5?, PROC8a, PROC8b, PROC9, ?PROC14?, PROC15
	Environmental Release Categories: ERC2
Processes, tasks, activities covered	Formulation, packing and re-packing of the substance and its mixtures in batch or continuous operations, including storage, materials transfers, mixing, large and small scale packing, maintenance and associated laboratory activities
Section 2	Operational conditions and risk management measures
Field for additional statements to explain scenario if required.	
Section 2.1	Control of worker exposure
Product characteristics	
Physical form of product	Liquid, vapour pressure > 10 kPa [OC5].
Concentration of substance in product	Covers percentage substance in the product up to 100 % (unless stated differently) [G13].
Amounts used	Not applicable
Frequency and duration of use	Covers daily exposures up to 8 hours (unless stated differently) [G2]
Human factors not influenced by risk management	Not applicable
Other Operational Conditions affecting worker exposure	Assumes use at not > 20oC above ambient [G15]; Assumes a good basic standard of occupational hygiene is implemented [G1].
Contributing Scenarios	Risk Management Measures {phrases between brackets provide additional, non-mandatory risk management advice}.
General exposures (closed systems) [CS15].	No specific measures identified [E118]. {Wear suitable gloves tested to EN374 [PPE15]}.
General exposures (closed systems) [CS15]. ; With sample collection [CS56]. With occasional controlled exposure [CS140]	Provide extract ventilation to points where emissions occur [E54]. {Wear suitable gloves tested to EN374 [PPE15]}.
General exposures (closed systems) [CS15]. Use in contained batch processes [CS37].	Provide extract ventilation to points where emissions occur [E54]. {Wear suitable gloves tested to EN374 [PPE15]}.
General exposures (open systems) [CS16]. Batch process [CS55]. ; With sample collection [CS56]. ; With potential for aerosol generation [CS138].	Provide extract ventilation to points where emissions occur [E54]. {Wear suitable gloves tested to EN374 [PPE15]}.
Batch processes at elevated temperatures [CS136].	Provide extract ventilation to points where emissions occur [E54]. {Wear suitable gloves tested to EN374 [PPE15]}.
Process sampling [CS2].	Provide extract ventilation to points where emissions occur [E54]. {Avoid dip sampling [E42]}. {Wear suitable gloves tested to EN374 [PPE15]}.
Laboratory activities [CS36].	Handle in a fume cupboard or under extract ventilation [E83].{Wear suitable gloves tested to EN374 [PPE15]}.
Bulk transfers [CS14].	Provide extract ventilation to points where emissions occur [E54]. {Clear transfer lines prior to de-coupling [E39]}. {Clear spills immediately [C&H13]}. {Wear suitable gloves tested to EN374 [PPE15]}. {Return IBCs or tanks to supplier for re-use [ENVT7]}.

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Mixing operations (open systems) [CS30]. With potential for aerosol generation [CS138].	Provide extract ventilation to points where emissions occur [E54]. {Wear suitable gloves tested to EN374 [PPE15]}.
Manual [CS34]. ; Transfer from/pouring from containers [CS22].	Provide extract ventilation to points where emissions occur [E54]. {Wear suitable gloves tested to EN374 [PPE15]}.
Drum/batch transfers [CS8].	Provide extract ventilation to points where emissions occur [E54]. {Avoid spillage when withdrawing pump [C&H16]}. {Wear suitable gloves tested to EN374 [PPE15]}.
Production or preparation of articles by tableting, compression, extrusion or pelletisation [CS100]	Provide extract ventilation to points where emissions occur [E54]. {Wear suitable gloves tested to EN374 [PPE15]}.
Drum and small package filling [CS6].	Ensure material transfers are under containment or extract ventilation [E66]. {Clear spills immediately [C&H13]}. ; {Put lids on containers immediately after use [E9]}. {Wear suitable gloves tested to EN374 [PPE15]}.
Equipment cleaning and maintenance [CS39].	Drain down and flush system prior to equipment break-in or maintenance [E55].{Transfer via enclosed lines [E52]}. {Wear suitable gloves tested to EN374 [PPE15]}. {Retain drain downs in sealed storage pending disposal or for subsequent recycle [ENVT4]}.
Storage [CS67]With occasional controlled exposure [CS140]	Provide extract ventilation to points where emissions occur [E54]. {Avoid dip sampling [E42]}. {Wear suitable gloves tested to EN374 [PPE15]}.
Section 2.2	Control of environmental exposure
	No exposure assessment presented for the environment. [G40]
Section 3	Exposure Estimation
3.1. Health	The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated [G21].
Section 4	Guidance to check compliance with the Exposure Scenario
4.1. Health	Predicted exposures are not expected to exceed the DN(M)EL when the Risk Management Measures/Operational Conditions outlined in Section 2 are implemented [G22].
	Where other Risk Management Measures/Operational Conditions are adopted, then users should ensure that risks are managed to at least equivalent levels [G23].

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Product Name	METHANOL
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EXPOSURE SCENARIO 4

Section 1	Exposure Scenario Title
Title	Use in Fuels of Methanol; CAS RN 67-56-1
Use Descriptor	Sector of Use: Industrial (SU3, SU10)
	Process Categories: PROC1, PROC2, PROC3, ?PROC4?, PROC8a, PROC8b, PROC16, PROC19
	Environmental Release Categories: ERC8B
Processes, tasks, activities covered	Covers the use as a fuel (or fuel additive) and includes activities associated with its transfer, use, equipment maintenance and handling of waste.
Section 2	Operational conditions and risk management measures
Field for additional statements to explain scenario if required.	
Section 2.1	Control of worker exposure
Product characteristics	
Physical form of product	Liquid, vapour pressure > 10 kPa [OC5].
Concentration of substance in product	Covers percentage substance in the product up to 100 % (unless stated differently) [G13].
Amounts used	Not applicable
Frequency and duration of use	Covers daily exposures up to 8 hours (unless stated differently) [G2]
Human factors not influenced by risk management	Not applicable
Other Operational Conditions affecting worker exposure	Assumes use at not > 20oC above ambient [G15]; Assumes a good basic standard of occupational hygiene is implemented [G1].
Contributing Scenarios	Risk Management Measures {phrases between brackets provide additional, non-mandatory risk management advice}.
Bulk transfers [CS14].	No specific measures identified [E18]. {Wear suitable gloves tested to EN374 [PPE15]}.
Drum/batch transfers [CS8].	Provide extract ventilation to points where emissions occur [E54]. {Wear suitable gloves tested to EN374 [PPE15]}.
General exposures (closed systems) [CS15].	No specific measures identified [E18]. {Wear suitable gloves tested to EN374 [PPE15]}.
General exposures (closed systems) [CS15]. With occasional controlled exposure [CS137]	Provide extract ventilation to points where emissions occur [E54]. {Wear suitable gloves tested to EN374 [PPE15]}.
General exposures (closed systems) [CS15]. Batch process [CS55].	Provide extract ventilation to points where emissions occur [E54]. {Wear suitable gloves tested to EN374 [PPE15]}.
Use as a fuel [GEST12_I](closed systems) [CS107]	No specific measures identified [E18]. {Wear suitable gloves tested to EN374 [PPE15]}.
Equipment maintenance [CS5].	Drain down and flush system prior to equipment break-in or maintenance [E55]. {Retain drain downs in sealed storage pending disposal or for subsequent recycle [ENVT4]}. {Wear suitable gloves tested to EN374 [PPE15]}.
Vessel and container cleaning [CS103]	Provide extract ventilation to points where emissions occur [E54]. {Wear suitable gloves tested to EN374 [PPE15]}.
Storage [CS67]	{Wear suitable gloves tested to EN374 [PPE15]}.
Storage [CS67]With occasional controlled exposure [CS137]	Provide extract ventilation to points where emissions occur [E54]. {Wear suitable gloves tested to EN374 [PPE15]}.
Disposal of wastes [CS28].	Provide extract ventilation to points where emissions occur [E54]. {Wear suitable gloves tested to EN374 [PPE15]}.
Section 2.2	Control of environmental exposure

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	No exposure assessment presented for the environment. [G40]
Section 3	Exposure Estimation
3.1. Health	The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated [G21].
Section 4 TBD	Guidance to check compliance with the Exposure Scenario
4.1. Health	Predicted exposures are not expected to exceed the DN(M)EL when the Risk Management Measures/Operational Conditions outlined in Section 2 are implemented [G22].
	Where other Risk Management Measures/Operational Conditions are adopted, then users should ensure that risks are managed to at least equivalent levels [G23].

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EXPOSURE SCENARIO 5

Section 1	Exposure Scenario Title
Title	Use in Fuels of Methanol; CAS RN 67-56-1
Use Descriptor	Sector of Use: Professional (SU22)
	Process Categories: PROC1, PROC2, PROC3, PROC8a, PROC8b, PROC16
	Environmental Release Categories: ERC 8B, ERC 8E
Processes, tasks, activities covered	Covers the use as a fuel (or fuel additive) and includes activities associated with its transfer, use, equipment maintenance and handling of waste.
Section 2	Operational conditions and risk management measures
Field for additional statements to explain scenario if required.	
Section 2.1	Control of worker exposure
Product characteristics	
Physical form of product	Liquid, vapour pressure > 10 kPa [OC5].
Concentration of substance in product	Covers percentage substance in the product up to 100 % (unless stated differently) [G13].
Amounts used	Not applicable
Frequency and duration of use	Covers daily exposures up to 8 hours (unless stated differently) [G2]
Human factors not influenced by risk management	Not applicable
Other Operational Conditions affecting worker exposure	Assumes use at not > 20 ~ Assumes a good basic standard of occupational hygiene is implemented [G1].
Contributing Scenarios	Risk Management Measures {phrases between brackets provide additional, non-mandatory risk management advice}.
	0
Drum/batch transfers [CS8].	Use drum pumps or carefully pour from container [E64]. Avoid carrying out activities involving exposure for more than 1 hour [OC27]. {Wear suitable gloves tested to EN374 [PPE15]}.
Bulk transfers [CS14].	Use drum pumps [E53]. Avoid carrying out activities involving exposure for more than 1 hour [OC27]. {Wear suitable gloves tested to EN374 [PPE15]}.
General exposures (closed systems) [CS15].	No specific measures identified [E118]. {Wear suitable gloves tested to EN374 [PPE15]}.
General exposures (closed systems) [CS15]. With occasional controlled exposure [CS137]	Provide extract ventilation to points where emissions occur [E54]. {Wear suitable gloves tested to EN374 [PPE15]}.
General exposures (open systems) [CS16]. ; (closed systems) [CS107]Batch process [CS55].	No specific measures identified [E118]. {Wear suitable gloves tested to EN374 [PPE15]}.
Use as a fuel [GEST12_](closed systems) [CS107]	No specific measures identified [E118]. {Wear suitable gloves tested to EN374 [PPE15]}.
Equipment cleaning and maintenance [CS39].	Drain down system prior to equipment break-in or maintenance [E65]. Avoid carrying out activities involving exposure for more than 1 hour [OC27]. Retain drain downs in sealed storage pending disposal or for subsequent recycle [ENVT4]. {Wear suitable gloves tested to EN374 [PPE15]}.
Vessel and container cleaning [CS103]	Drain down system prior to equipment break-in or maintenance [E65]. Wear a respirator conforming to EN140 with Type A filter or better [PPE22]. Retain drain downs in sealed storage pending disposal or for subsequent recycle [ENVT4]. {Wear suitable gloves tested to EN374 [PPE15]}.
Storage [CS67]	No specific measures identified [E118]. {Wear suitable gloves tested to EN374 [PPE15]}.

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Section 2.2	Control of environmental exposure
	No exposure assessment presented for the environment. [G40]
Section 3	Exposure Estimation
3.1. Health	The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated [G21].
Section 4	Guidance to check compliance with the Exposure Scenario
4.1. Health	Predicted exposures are not expected to exceed the DN(M)EL when the Risk Management Measures/Operational Conditions outlined in Section 2 are implemented [G22].
	Where other Risk Management Measures/Operational Conditions are adopted, then users should ensure that risks are managed to at least equivalent levels [G23].

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EXPOSURE SCENARIO 6

Section 1	Exposure Scenario Title
Title	Use in cleaning agents of Methanol; CAS RN 67-56-1
Use Descriptor	Sector of Use: Industrial (SU3)
	Process Categories: PROC1, PROC2, PROC3, PROC4, PROC7, PROC8a, PROC8b, PROC10, PROC13
	Environmental Release Categories: ERC4
Processes, tasks, activities covered	Covers the use as a component of cleaning products including transfer from storage, pouring/unloading from drums or containers. Exposures during mixing/diluting in the preparatory phase and cleaning activities (including spraying, brushing, dipping, wiping, automated and by hand), related equipment cleaning and maintenance.
Section 2	Operational conditions and risk management measures
Field for additional statements to explain scenario if required.	
Section 2.1	Control of worker exposure
Product characteristics	
Physical form of product	Liquid, vapour pressure > 10 kPa [OC5].
Concentration of substance in product	Covers percentage substance in the product up to 100 % (unless stated differently) [G13].
Amounts used	Not applicable
Frequency and duration of use	Covers daily exposures up to 8 hours (unless stated differently) [G2]
Human factors not influenced by risk management	Not applicable
Other Operational Conditions affecting worker exposure	Assumes use at not > 20oC above ambient [G15]; Assumes a good basic standard of occupational hygiene is implemented [G1].
Contributing Scenarios	Risk Management Measures {phrases between brackets provide additional, non-mandatory risk management advice}.
Bulk transfers [CS14].	Ensure material transfers are under containment or extract ventilation [E66].
Automated process with (semi) closed systems [CS93]Use in contained systems [CS38].	Ensure material transfers are under containment or extract ventilation [E66].
Automated process with (semi) closed systems [CS93]Use in contained systems [CS38].	Ensure material transfers are under containment or extract ventilation [E66].
Application of cleaning products in closed systems [CS101] Use in contained systems [CS38].	Ensure material transfers are under containment or extract ventilation [E66].
Filling / preparation of equipment from drums or containers. [CS45]. Dedicated facility [CS81]	Ensure material transfers are under containment or extract ventilation [E66].
Use in contained batch processes [CS37]. Treatment by heating [OC129].	Provide the operation with a properly sited receiving hood [E71].
Degreasing small objects in cleaning station [CS41].	Provide the operation with a properly sited receiving hood [E71].
Cleaning with low-pressure washers [CS42].	Provide the operation with a properly sited receiving hood [E71].
Cleaning with high pressure washers [CS44].	Carry out in a vented booth or extracted enclosure [E57]. Stay upwind/keep distance from source [EI22]. Clean equipment and the work area every day [C&H3]. Ensure control measures are regularly inspected and maintained [E6].

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Cleaning [CS47]. Manual [CS34]. Surfaces [CS48]. No spraying [CS60].	Provide the operation with a properly sited receiving hood [E71].
Equipment cleaning and maintenance [CS39].	Ensure material transfers are under containment or extract ventilation [E66].
Storage [CS67]Product sampling [CS137]	Ensure material transfers are under containment or extract ventilation [E66].
Section 2.2	Control of environmental exposure
	No exposure assessment presented for the environment. [G40]
Section 3 TBD	Exposure Estimation
3.1. Health	The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated [G21]
Section 4 TBD	Guidance to check compliance with the Exposure Scenario
4.1. Health	Predicted exposures are not expected to exceed the DN(M)EL when the Risk Management Measures/Operational Conditions outlined in Section 2 are implemented [G22].
	Where other Risk Management Measures/Operational Conditions are adopted, then users should ensure that risks are managed to at least equivalent levels [G23].

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EXPOSURE SCENARIO 7	
Section 1	Exposure Scenario Title
Title	Use in cleaning agents of Methanol; CAS RN 67-56-1
Use Descriptor	Sector of Use: Professional (SU22)
	Process Categories: PROC1, PROC2, PROC3, PROC4, PROC8a, PROC8b, PROC10, PROC11, PROC13
	Environmental Release Categories: ERC 8A, ERC 8D
Processes, tasks, activities covered	Covers the use as a component of cleaning products including pouring/unloading from drums or containers; and exposures during mixing/diluting in the preparatory phase and cleaning activities (including spraying, brushing, dipping, wiping automated and by hand).
Section 2	Operational conditions and risk management measures
Field for additional statements to explain scenario if required.	
Section 2.1	Control of worker exposure
Product characteristics	
Physical form of product	Liquid, vapour pressure > 10 kPa [OC5].
Concentration of substance in product	Covers percentage substance in the product up to 100 % (unless stated differently) [G13].
Amounts used	Not applicable
Frequency and duration of use	Covers daily exposures up to 8 hours (unless stated differently) [G2]
Human factors not influenced by risk management	Not applicable
Other Operational Conditions affecting worker exposure	Assumes use at not > 20oC above ambient [G15]; Assumes a good basic standard of occupational hygiene is implemented [G1].
	0
Contributing Scenarios	Risk Management Measures {phrases between brackets provide additional, non-mandatory risk management advice}.
Filling / preparation of equipment from drums or containers. [CS45]. Dedicated facility [CS81]	Limit the substance content in the product to 5 % [OC17] or: Ensure material transfers are under containment or extract ventilation [E66].
Automated process with (semi) closed systems [CS93] Use in contained systems [CS38].	Provide the operation with a properly sited receiving hood [E71].
Automated process with (semi) closed systems [CS93] Use in contained systems [CS38]. Drum/batch transfers [CS8].	Provide the operation with a properly sited receiving hood [E71].
Semi Automated process. (e.g.: Semi automatic application of floor care and maintenance products) [CS76]	Provide the operation with a properly sited receiving hood [E71]. Avoid carrying out activities involving exposure for more than 4 hours [OC28]
Filling / preparation of equipment from drums or containers. [CS45]. Non-dedicated facility [CS82].	Limit the substance content in the product to 5 % [OC17] or: Ensure material transfers are under containment or extract ventilation [E66].
Dipping, immersion and pouring [CS4]. Manual [CS34]. Cleaning [CS47]. Surfaces [CS48].	Provide the operation with a properly sited receiving hood [E71].
Cleaning with low-pressure washers [CS42]. Rolling, Brushing [CS51]. No spraying [CS60].	Limit the substance content in the product to 5 % [OC17]

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Product Name	METHANOL
Cleaning with high pressure washers [CS44]. Spraying [CS10].	Limit the substance content in the product to 5 % [OC17]. Avoid carrying out activities involving exposure for more than 4 hours [OC28]. Use long handled tools where possible [E50]. Wear chemically resistant gloves (tested to EN374) in combination with specific activity training. [PPE17]
Spraying [CS10]. Manual [CS34]. Surfaces [CS48]. Cleaning [CS47].	Limit the substance content in the product to 5 % [OC17] or: Provide the operation with a properly sited receiving hood [E71].
Ad hoc manual application via trigger sprays, dipping, etc. [CS27]. Rolling, Brushing [CS51].	Limit the substance content in the product to 5 % [OC17] or: Provide the operation with a properly sited receiving hood [E71].
Ad hoc manual application via trigger sprays, dipping, etc. [CS27]. Rolling, Brushing [CS51].	Limit the substance content in the product to 5 % [OC17]
Application of cleaning products in closed systems [CS101]	Ensure material transfers are under containment or extract ventilation [E66]. Avoid carrying out activities involving exposure for more than 4 hours [OC28]
Cleaning of medical devices [CS74]	Provide the operation with a properly sited receiving hood [E71]. Avoid carrying out activities involving exposure for more than 4 hours [OC28]
Equipment cleaning and maintenance [CS39].	Limit the substance content in the product to 5 % [OC17]
Storage [CS67]With occasional controlled exposure [CS137]	Ensure material transfers are under containment or extract ventilation [E66].
Section 2.2	Control of environmental exposure
	No exposure assessment presented for the environment. [G40]
Section 3	Exposure Estimation
3.1. Health	The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated [G21]
Section 4 TBD	Guidance to check compliance with the Exposure Scenario
4.1. Health	Predicted exposures are not expected to exceed the DN(M)EL when the Risk Management Measures/Operational Conditions outlined in Section 2 are implemented [G22].
	Where other Risk Management Measures/Operational Conditions are adopted, then users should ensure that risks are managed to at least equivalent levels [G23].

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EXPOSURE SCENARIO 8

Section 1	Exposure Scenario Title
Title	Use in laboratory reagents of Methanol; CAS RN67-56-1
Use Descriptor	Sector of Use: Industrial (SU3, SU10)
	Process Categories: PROC10, PROC15
	Environmental Release Categories: ERC 4
Processes, tasks, activities covered	Use of the substance within laboratory settings, including material transfers and equipment cleaning
Section 2	Operational conditions and risk management measures
Field for additional statements to explain scenario if required.	
Section 2.1	Control of worker exposure
Product characteristics	
Physical form of product	Liquid, vapour pressure > 10 kPa [OC5].
Concentration of substance in product	Covers percentage substance in the product up to 100 % (unless stated differently) [G13].
Amounts used	Not applicable
Frequency and duration of use	Covers daily exposures up to 8 hours (unless stated differently) [G2]
Human factors not influenced by risk management	Not applicable
Other Operational Conditions affecting worker exposure	Assumes use at not > 20 ~ Assumes a good basic standard of occupational hygiene is implemented [G1].
Contributing Scenarios	Risk Management Measures {phrases between brackets provide additional, non-mandatory risk management advice}.
Laboratory activities [CS36]. Small scale [CS61]. Handling small quantities (<1000ml) for more than 4 hours/day - inside fume cupboard.	Handle in a fume cupboard or under extract ventilation [E83].{Wear suitable gloves tested to EN374 [PPE15]}.
Cleaning [CS47]. Rolling, Brushing [CS51]. ; Vessel and container cleaning [CS103]	Handle in a fume cupboard or under extract ventilation [E83].{Carefully pour from containers [E62]}. {Retain drain downs in sealed storage pending disposal or for subsequent recycle [ENVT4].}{Wear suitable gloves tested to EN374 [PPE15]}.
Section 2.2	Control of environmental exposure
	No exposure assessment presented for the environment. [G40]
Section 3	Exposure Estimation
3.1. Health	The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated [G21].
Section 4	Guidance to check compliance with the Exposure Scenario
4.1. Health	Predicted exposures are not expected to exceed the DN(M)EL when the Risk Management Measures/Operational Conditions outlined in Section 2 are implemented [G22].
	Where other Risk Management Measures/Operational Conditions are adopted, then users should ensure that risks are managed to at least equivalent levels [G23].

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EXPOSURE SCENARIO 9

Section 1	Exposure Scenario Title
Title	Use in laboratory reagents of Methanol; CAS RN 67-56-1
Use Descriptor	Sector of Use: Professional (SU22)
	Process Categories: PROC10, PROC15
	Environmental Release Categories: ERC 8A
Processes, tasks, activities covered	Use of small quantities within laboratory settings, including material transfers and equipment cleaning.
Section 2	Operational conditions and risk management measures
Field for additional statements to explain scenario if required.	
Section 2.1	Control of worker exposure
Product characteristics	
Physical form of product	Liquid, vapour pressure > 10 kPa [OC5].
Concentration of substance in product	Covers percentage substance in the product up to 100 % (unless stated differently) [G13].
Amounts used	Not applicable
Frequency and duration of use	Covers daily exposures up to 8 hours (unless stated differently) [G2]
Human factors not influenced by risk management	Not applicable
Other Operational Conditions affecting worker exposure	Assumes use at not > 20oC above ambient [G15]; Assumes a good basic standard of occupational hygiene is implemented [G1].
Contributing Scenarios	Risk Management Measures {phrases between brackets provide additional, non-mandatory risk management advice}.
Laboratory activities [CS36]. Small scale [CS61]. ; Fume-cupboard Activity [CS139].	Handle in a fume cupboard or under extract ventilation [E83].{Wear suitable gloves tested to EN374 [PPE15]}.
Cleaning [CS47]. Rolling, Brushing [CS51]. ; Vessel and container cleaning [CS103]	Handle in a fume cupboard or under extract ventilation [E83].{Carefully pour from containers [E62]}. {Retain drain downs in sealed storage pending disposal or for subsequent recycle [ENVT4].}{Wear suitable gloves tested to EN374 [PPE15]}.
Section 2.2	Control of environmental exposure
	No exposure assessment presented for the environment. [G40]
Section 3	Exposure Estimation
3.1. Health	The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated [G21]
Section 4	Guidance to check compliance with the Exposure Scenario
4.1. Health	Predicted exposures are not expected to exceed the DN(M)EL when the Risk Management Measures/Operational Conditions outlined in Section 2 are implemented [G22].
	Where other Risk Management Measures/Operational Conditions are adopted, then users should ensure that risks are managed to at least equivalent levels [G23].

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EXPOSURE SCENARIO 10

Section 1	Exposure Scenario Title
Title	Use in water treatment applications of Methanol; CAS RN 67-56-1
Use Descriptor	Sector of Use: Industrial (SU10)
	Process Categories: PROC1, PROC2, PROC3, PROC4, PROC8a, PROC8b, PROC13
	Environmental Release Categories: ERC4, ERC6B
Processes, tasks, activities covered	Covers the use of the substance for the treatment of water at industrial facilities in open and closed systems.
Section 2	Operational conditions and risk management measures
Field for additional statements to explain scenario if required.	
Section 2.1	Control of worker exposure
Product characteristics	
Physical form of product	Liquid, vapour pressure > 10 kPa [OC5].
Concentration of substance in product	Covers percentage substance in the product up to 100 % (unless stated differently) [G13].
Amounts used	Not applicable
Frequency and duration of use	Covers daily exposures up to 8 hours (unless stated differently) [G2]
Human factors not influenced by risk management	Not applicable
Other Operational Conditions affecting worker exposure	Assumes use at not > 20oC above ambient [G15]; Assumes a good basic standard of occupational hygiene is implemented [G1].
	0
Contributing Scenarios	Risk Management Measures {phrases between brackets provide additional, non-mandatory risk management advice}.
Bulk transfers [CS14]. With occasional controlled exposure [CS137]	Provide extract ventilation to points where emissions occur [E54]. {Transfer via enclosed lines [E52]}. {Clear transfer lines prior to de-coupling [E39]}. {Wear suitable gloves tested to EN374 [PPE15]}.
Drum/batch transfers [CS8]. Dedicated facility [CS81].	Avoid spillage when withdrawing pump [C&H16]. {Wear suitable gloves tested to EN374 [PPE15]}.
General exposures (closed systems) [CS15]. Batch process [CS55].	No specific measures identified [E118]. {Wear suitable gloves tested to EN374 [PPE15]}.
General exposures (open systems) [CS16].	No specific measures identified [E118]. {Wear suitable gloves tested to EN374 [PPE15]}.
Pouring from small containers [CS9]. Treatment by dipping and pouring [CS35].	Provide a good standard of controlled ventilation (10 to 15 air changes per hour) [E40]. {Wear suitable gloves tested to EN374 [PPE15]}.
Equipment maintenance [CS5].	Drain or remove substance from equipment prior to break-in or maintenance [E81]. Retain drain downs in sealed storage pending disposal or for subsequent recycle [ENVT4]. {Carefully pour from containers [E62]}. {Wear suitable gloves tested to EN374 [PPE15]}.
Storage [CS67]	Store substance within a closed system [E84].{Wear suitable gloves tested to EN374 [PPE15]}.
Section 2.2	Control of environmental exposure
	No exposure assessment presented for the environment. [G40]
Section 3	Exposure Estimation

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3.1. Health	The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated [G21].
Section 4	Guidance to check compliance with the Exposure Scenario
4.1. Health	Predicted exposures are not expected to exceed the DN(M)EL when the Risk Management Measures/Operational Conditions outlined in Section 2 are implemented [G22].
	Where other Risk Management Measures/Operational Conditions are adopted, then users should ensure that risks are managed to at least equivalent levels [G23].

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EXPOSURE SCENARIO 11

Section 1	Exposure Scenario Title
Title	Use in oil field drilling and production operations of Methanol; CAS RN 67-56-1
Use Descriptor	Sector of Use: Industrial (SU3)
	Process Categories: PROC1, PROC2, PROC3, PROC4, PROC5, PROC8a, PROC8b
	Environmental Release Categories: ERC4
Processes, tasks, activities covered	Oil field well drilling and production operations (including drilling muds and well cleaning) including material transfers, on-site formulation, wellhead operations, shaker room activities and related maintenance.
Section 2	Operational conditions and risk management measures
Field for additional statements to explain scenario if required.	
Section 2.1	Control of worker exposure
Product characteristics	
Physical form of product	Liquid, vapour pressure > 10 kPa [OC5].
Concentration of substance in product	Covers percentage substance in the product up to 100 % (unless stated differently) [G13].
Amounts used	Not applicable
Frequency and duration of use	Covers daily exposures up to 8 hours (unless stated differently) [G2]
Human factors not influenced by risk management	Not applicable
Other Operational Conditions affecting worker exposure	Assumes use at not > 20oC above ambient [G15]; Assumes a good basic standard of occupational hygiene is implemented [G1].
Contributing Scenarios	Risk Management Measures
Bulk transfers [CS14]. Mixtures containing up to 5% of methanol	Limit the substance content in the product to 5 % [OC17]. {Wear chemically resistant gloves (tested to EN374) in combination with 'basic' employee training [PPE16]}.
Filling / preparation of equipment from drums or containers. [CS45]. Mixtures containing up to 5% of methanol	Limit the substance content in the product to 5 % [OC17]. {Wear chemically resistant gloves (tested to EN374) in combination with 'basic' employee training [PPE16]}.
Drill floor operations [CS116]. General exposures (closed systems) [CS15]. Outdoor [OC9].	No other specific measures identified [E120]. {Wear chemically resistant gloves (tested to EN374) in combination with 'basic' employee training [PPE16]}.
Drill floor operations [CS116]. General exposures (open systems) [CS16]. Outdoor [OC9].	Ensure operation is undertaken outdoors [E69]. {Wear chemically resistant gloves (tested to EN374) in combination with 'basic' employee training [PPE16]}.
Operation of solids filtering equipment [CS117].	Ensure material transfers are under containment or extract ventilation [E66]. Avoid carrying out activities involving exposure for more than 4 hours [OC28]. {Wear chemically resistant gloves (tested to EN374) in combination with 'basic' employee training [PPE16]}.
Treatment and disposal of filtered solids [CS121].	Ensure material transfers are under containment or extract ventilation [E66]. {Wear chemically resistant gloves (tested to EN374) in combination with 'basic' employee training [PPE16]}.
Process sampling [CS2].	No specific measures identified [E118]. {Wear chemically resistant gloves (tested to EN374) in combination with 'basic' employee training [PPE16]}.
General exposures (closed systems) [CS15].	No specific measures identified [E118]. {Wear chemically resistant gloves (tested to EN374) in combination with 'basic' employee training [PPE16]}.
Pouring from small containers [CS9]. Mixtures containing up to 5%	Provide a good standard of general ventilation. Natural ventilation is from windows and doors etc. Controlled ventilation means air is supplied or removed by a powered

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of methanol	fan. [E1]. {Wear chemically resistant gloves (tested to EN374) in combination with 'basic' employee training [PPE16]}.
Mixing operations (open systems) [CS30]. Mixtures containing up to 5% of methanol	Limit the substance content in the product to 5 % [OC17]. No other specific measures identified [E120]. {Wear chemically resistant gloves (tested to EN374) in combination with 'basic' employee training [PPE16]}.
Equipment cleaning and maintenance [CS39].	Limit the substance content in the product to 5 % [OC17]. Provide a good standard of general ventilation. Natural ventilation is from windows and doors etc. Controlled ventilation means air is supplied or removed by a powered fan. [E1]. {Wear chemically resistant gloves (tested to EN374) in combination with 'basic' employee training [PPE16]}.
Batch process [CS55].	No specific measures identified [E118]. {Wear chemically resistant gloves (tested to EN374) in combination with 'basic' employee training [PPE16]}.
Batch process [CS55]. With occasional controlled exposure [CS137]	Provide extract ventilation to points where emissions occur [E54]. {Wear chemically resistant gloves (tested to EN374) in combination with 'basic' employee training [PPE16]}.
Section 2.2	Control of environmental exposure
	No exposure assessment presented for the environment. [G40]
Section 3	Exposure Estimation
3.1. Health	The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated [G21]
Section 4	Guidance to check compliance with the Exposure Scenario
4.1. Health	Predicted exposures are not expected to exceed the DN(M)EL when the Risk Management Measures/Operational Conditions outlined in Section 2 are implemented [G22].
	Where other Risk Management Measures/Operational Conditions are adopted, then users should ensure that risks are managed to at least equivalent levels [G23].
Section 5	Additional good practice advice beyond the REACH Chemical Safety Assessment - (Section Optional)
Note: The measures reported in this section have not been taken into account in the exposure estimates related to the exposure scenario above. They are not subject to obligation laid down in Article 37 (4) of REACH.	
Control of Worker Exposure	
Selection of relevant Contributing Scenario phrases	Good practice RMM phrases may be incorporated in this section or consolidated into the main sections of the SDS, depending on the preference of the Registrant and functionality of the available e-SDS system.

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12. Exposure Scenario 12

12.1 Exposure Scenario

General remarks

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

Table 1.76: Description of exposure scenario

1. Title			
Free short title	Consumer use of cleaning agents (e.g. windshield cleaner) and de-icers (liquid non-spray products)		
Systematic title based on use descriptor	ERC 8a and 8d; PC 4 and 35, SU 21		
Processes, tasks activities covered	Application of cleaning agents and de-icers as liquid non-spray products.		
Assessment Method	Tool used: ConsExpo (v4.1) Default exposure scenario with modifications ¹ : Cleaning and washing agents/All-purpose cleaners/Liquid cleaner/Application (Inhalation evaporation model: mode of release – evaporation; Dermal direct product contact: dermal loading – instant application)		
2. Operational conditions and risk management measures			
2.1 Control of consumers exposure			
Frequency and duration of use			
Frequency of exposure	104	1/year	ConsExpo default value
Duration of exposure	240	mins	ConsExpo default value
Duration of application	20	mins	ConsExpo default value
Product characteristic (including package design affecting exposure)			
Physical state of the product	Liquid		
Concentration of substance in product	Max. 2.5	%	
Vapour pressure of substance	169	hPa	
Mol weight matrix	18	g/mol	ConsExpo default value
Mass transfer rate	0.413	m/min	Approximation according to Thibodauxs´ method
Amounts used			
Applied amount	100	g/event	Corresponding applied amount dermal is assumed to be 5 g/event ¹
Human factors not influenced by risk management			
Exposed body parts dermal	1900	cm ²	Refers to both hands and forearms; ConsExpo default value
Inhalation rate	24.1	l/min	Light exercise; ConsExpo default value
Other given operational conditions affecting consumers exposure			
Room volume	58	m ³	ConsExpo default value
Ventilation rate	0.5	1/hr	ConsExpo default value

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Release area	5	m ²	
Conditions and measures related to information and behavioural advice to consumers			
			None
Conditions and measures related to personal protection and hygiene			
			None

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

- Inhalation model: applied amount of 100g (instead of 400g)
 Release area of 5m² (instead of 10m²)

- Dermal model: applied amount of 5 g (instead of 19g)

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

12.2 Exposure Estimation

Table 1.77: Estimated exposure for consumers

Route of exposure	Concentrations		Justification
	Value	Unit	
Long-term exposure, systemic, dermal	1.92	mg/kg bw/d	
Long-term exposure, systemic, inhalative	3.05	mg/m ³	
Long-term exposure, systemic, oral	NA	mg/kg bw/d	This route of exposure is regarded to be not relevant.
Short-term exposure, systemic, dermal	1.92	mg/kg bw/d	
Short-term exposure, systemic, inhalative	18.30	mg/m ³	
Short-term exposure, systemic, oral	NA	mg/kg bw/d	This route of exposure is regarded to be not relevant.

NA = Not applicable

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13. Exposure Scenario 13

13.1 Exposure Scenario

Table 1.78: Description of exposure scenario

1. Title			
Free short title	Consumer use of cleaning agents (e.g. windshield cleaner) and de-icers (liquid spray products)		
Systematic title based on use descriptor	ERC 8a and 8d, PC 4 and 35, SU 21		
Processes, tasks activities covered	Application of cleaning agents and de-icers as liquid spray products		
Assessment Method	Tool used: ConsExpo (v4.1) Default exposure scenario: Cleaning and washing agents/All-purpose cleaners/Spray cleaner/Application spraying and application cleaning		
2. Operational conditions and risk management measures			
2.1 Control of consumers exposure			
Frequency and duration of use			
Frequency of exposure	365	1/year	ConsExpo default value
Duration of exposure	60	mins	ConsExpo default value
Duration of application	10	mins	ConsExpo default value
Spray duration	0.41	mins	Only relevant within the "Application spraying" model; ConsExpo default value
Product characteristic (including package design affecting exposure)			
Physical state of the product	Liquid		
Concentration of substance in product	Max. 5.0	%	
Vapour pressure of substance	169	hPa	
Mol weight matrix	22	g/mol	Only relevant within the "Application cleaning" model; ConsExpo default value
Mass transfer rate	0.413	m/min	Approximation according to Thibodaux's method; Only relevant within the "Application cleaning" model
Amounts used			
Applied amount	16.2	g/event	Corresponding applied amount dermal is assumed to be 0.16 g/event; ConsExpo default value
Human factors not influenced by risk management			
Exposed body parts dermal; Application spraying	960	cm ²	Refers to both hands ; ConsExpo default value
Exposed body parts dermal; Application Cleaning	215	cm ²	Refers to palm of one hand; ConsExpo default value

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Product Name	METHANOL		
Inhalation rate	24.1	l/min	Light exercise; ConsExpo default value
Other given operational conditions affecting consumers exposure			
Room volume	15	m ³	ConsExpo default value
Room height	2.5	m	Only relevant within the “Application spraying” model; ConsExpo default value
Ventilation rate	2.5	1/hr	ConsExpo default value
Release area	1.71	m ²	Only relevant within the “Application cleaning” model; ConsExpo default value
Conditions and measures related to information and behavioural advice to consumers			
Spraying away from exposed person			
Conditions and measures related to personal protection and hygiene			
			None

13.2 Exposure Estimation

Table 1.79: Estimated exposure for consumers

Route of exposure	Concentrations		Justification
	Value	Unit	
Long-term exposure, systemic, dermal (Application spraying)	0.0145	mg/kg bw/d	
Long-term exposure, systemic, dermal (Application cleaning)	0.0123		
Long-term exposure, systemic, dermal (Application spraying and cleaning)	0.0268		
Long-term exposure, systemic, inhalative (Application spraying)	0.000011	mg/m ³	
Long-term exposure, systemic, inhalative (Application cleaning)	0.822		
Long-term exposure, systemic, inhalative (Application spraying and cleaning)	0.822		

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Long-term exposure, systemic, oral (Application spraying)	0.000576		
Long-term exposure, systemic, oral (Application cleaning)	NA	mg/kg bw/d	
Long-term exposure, systemic, oral (Application spraying and cleaning)	0.000576		
Short-term exposure, systemic, dermal (Application spraying)	0.0145		
Short-term exposure, systemic, dermal (Application cleaning)	0.0123	mg/kg bw/d	
Short-term exposure, systemic, dermal (Application spraying and cleaning)	0.0268		
Short-term exposure, systemic, inhalative (Application spraying)	0.000263		
Short-term exposure, systemic, inhalative (Application cleaning)	19.7	mg/m ³	
Short-term exposure, systemic, inhalative (Application spraying and cleaning)	19.7		
Short-term exposure, systemic, oral (Application spraying)	0.000576		
Short-term exposure, systemic, oral (Application cleaning)	NA	mg/kg bw/d	
Short-term exposure, systemic, oral (Application spraying and cleaning)	0.000576		

NA = Not applicable

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14. Exposure Scenario 14a

14.1 Exposure Scenario

General remarks

For the consumer use of methanol as a fuel/within fuels it is assumed that the product design is in a way to exclude unintended skin contact. E.g. Filling/loading has to be possible without using a funnel and without spillage.

Table 1.80: Description of exposure scenario

1. Title			
Free short title	Consumer use of fuels indoors (Domestic/hobby use e.g in model engines, fuel cells, fondue sets)		
Systematic title based on use descriptor	PC 13, SU 21		
Processes, tasks activities covered	-		
Assessment Method	Tool used: ConsExpo (v4.1) (Inhalation model: Exposure to vapour – evaporation; Dermal model: Direct dermal contact with product: instant application; Dermal uptake model: Fraction)		
2. Operational conditions and risk management measures			
2.1 Control of consumers exposure			
Frequency and duration of use			
Frequency of exposure	2	1/week	
Duration of exposure	10	mins	
Duration of application	10	mins	
Product characteristic (including package design affecting exposure)			
Physical state of the product	Liquid		
Concentration of substance in product	80	%	According to the “Household products database” of the U.S. Department of Health and Human Services
Vapour pressure of substance	169	hPa	
Mol weight of matrix	100	g/mol	Estimated on the basis of available commercial products (ingredients: e.g. nitroethane, nitromethane, castor oil)
Mass transfer rate	0.413	m/min	Approximation according to Thibodaux’s method
Release area	2	cm ²	
Amounts used			
Applied amount (inhalative)	800	g/event	
Human factors not influenced by risk management			
Inhalation rate	34.7	m ³ /day	Light exercise
Other given operational conditions affecting consumers exposure			
Room volume	20	m ³	
Ventilation rate	0.5	1/hr	
Release area (inhalation)	2	cm ²	

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Conditions and measures related to information and behavioural advice to consumers

None

Conditions and measures related to personal protection and hygiene

None

Additional good practice advice

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

14.2 Exposure Estimation

Table 1.81: Estimated exposure for consumers

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

NA = Not applicable

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15. Exposure Scenario 14b

General remarks

Although the consumer use of methanol as/in fuels is assessed within this exposure scenario process category 16 was calculated with the ECETOC TRA worker tool (v2.0) to assess the activity. Process category 16 is considered to cover the activity of filling up vehicles in an appropriate manner, whereas a calculation with the ECETOC TRA consumer tool ConsExpo was deemed to be unsuitable for an assessment.

Table 1.82: Description of exposure scenario

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

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15.2 Exposure Estimation

Table 1.83: Estimated exposure for workers – PROC 16

Route of exposure	Concentrations		Justification
	Value	Unit	
Long-term exposure, systemic, dermal	0.34	mg/kg bw/d	
Long-term exposure, systemic, inhalative	4.67	mg/m ³	
Short-term exposure, systemic, dermal	0.34	mg/kg bw/d	
Short-term exposure, systemic, inhalative	9.34	mg/m ³	