Safety data sheet Safety data sheet

acc. to Safe Work Australia - Code of Practice

VOC - Standard Solution ROTI®Star 14 components in methanol

article number: **20K9**
Version: **GHS 1.0 en**

date of compilation: 2023-03-06

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

1.1 Product identifier

Identification of the substance: **VOC - Standard Solution** ROTI®Star 14 components in methanol

Article number: 20K9

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

Relevant identified uses: Laboratory and analytical use
Laboratory chemical

Uses advised against: Do not use for products which come into contact with foodstuffs. Do not use for private purposes (household).

1.3 Details of the supplier of the safety data sheet

Carl Roth GmbH + Co KG
Schoemperlenstr. 3-5
D-76185 Karlsruhe
Germany

Telephone:+49 (0) 721 - 56 06 0
Telefax: +49 (0) 721 - 56 06 149
e-mail: sicherheit@carlroth.de
Website: www.carlroth.de

Competent person responsible for the safety data sheet: :Department Health, Safety and Environment

e-mail (competent person): **sicherheit@carlroth.de**

1.4 Emergency telephone number

Name	Street	Postal code/city	Telephone	Website
NSW Poisons Information Centre Childrens Hospital	Hawkesbury Road	2145 Westmead, NSW	131126	

SECTION 2: Hazards identification

2.1 Classification of the substance or mixture

Classification acc. to GHS

Section	Hazard class	Category	Hazard class and category	Hazard statement
2.6	Flammable liquid	2	Flam. Liq. 2	H225
3.5	Germ cell mutagenicity	1B	Muta. 1B	H340
3.6	Carcinogenicity	1A	Carc. 1A	H350
3.8	Specific target organ toxicity - single exposure	1	STOT SE 1	H370

For full text of abbreviations: see SECTION 16

The most important adverse physicochemical, human health and environmental effects

Immediate effects can be expected after short-term exposure. The product is combustible and can be ignited by potential ignition sources.

2.2 Label elements

Labelling

Signal word **Danger**

Pictograms

GHS02, GHS08

Hazard statements

H225	Highly flammable liquid and vapour
H340	May cause genetic defects
H350	May cause cancer
H370	Causes damage to organs (eye)

Precautionary statements

Precautionary statements - prevention

P210	Keep away from heat/sparks/open flames/hot surfaces. - No smoking
P260	Do not breathe dust/fume/gas/mist/vapours/spray

Precautionary statements - response

P308+P311	IF exposed or concerned: Call a POISON CENTER/doctor
P308+P313	IF exposed or concerned: Get medical advice/attention
P370+P378	In case of fire: Use sand, carbon dioxide or powder extinguisher for extinction

Precautionary statements - storage

P403+P235	Store in a well-ventilated place. Keep cool

For professional users only

Hazardous ingredients for labelling: Methanol, Benzene, Trichloroethylene, Tetrachloroethylene

2.3 Other hazards

Results of PBT and vPvB assessment

This mixture does not contain any substances that are assessed to be a PBT or a vPvB.

Endocrine disrupting properties

Contains an endocrine disruptor (EDC) in a concentration of ≥ 0,1%.

SECTION 3: Composition/information on ingredients

3.1 Substances

not relevant (mixture)

3.2 Mixtures

Description of the mixture

Name of sub-stance	Identifier	Wt%	Classification acc. to GHS	Pictograms	Notes
Methanol	CAS No 67-56-1	95 – < 100	Flam. Liq. 2 / H225 Acute Tox. 3 / H301 Acute Tox. 3 / H311 Acute Tox. 3 / H331 STOT SE 1 / H370		
Carbon tetrachloride	CAS No 56-23-5	0.1	Acute Tox. 3 / H301 Acute Tox. 3 / H311 Acute Tox. 3 / H331 Carc. 2 / H351 STOT RE 1 / H372		
Toluene	CAS No 108-88-3	0.1	Flam. Liq. 2 / H225 Skin Irrit. 2 / H315 Repr. 2 / H361d STOT SE 3 / H336 STOT RE 2 / H373 Asp. Tox. 1 / H304		
Tetrachloroethylene	CAS No 127-18-4	0.1	Skin Irrit. 2 / H315 Eye Irrit. 2A / H319 Skin Sens. 1 / H317 Carc. 2 / H351 STOT SE 3 / H336		
Trichloromethane	CAS No 67-66-3	0.1	Acute Tox. 4 / H302 Acute Tox. 3 / H331 Skin Irrit. 2 / H315 Eye Irrit. 2 / H319 Carc. 2 / H351 Repr. 2 / H361d STOT RE 1 / H372		
Benzene	CAS No 71-43-2	0.1	Flam. Liq. 2 / H225 Skin Irrit. 2 / H315 Eye Irrit. 2 / H319 Muta. 1B / H340 Carc. 1A / H350 STOT RE 1 / H372 Asp. Tox. 1 / H304		
Dichloromethane	CAS No 75-09-2	0.1	Skin Irrit. 2 / H315 Eye Irrit. 2A / H319 Carc. 2 / H351 STOT SE 3 / H336		IARC: 2A
Trichloroethylene	CAS No 79-01-6	0.1	Skin Irrit. 2 / H315 Eye Irrit. 2 / H319 Muta. 2 / H341 Carc. 1B / H350 STOT SE 3 / H336		IARC: 1 RoC "Known"

Notes

IARC: 1: IARC group 1: carcinogenic to humans (International Agency for Research on Cancer)
IARC: 2A: IARC group 2A: probably carcinogenic to humans (International Agency for Research on Cancer)
RoC "Known": NTP-RoC: Known To Be A Human Carcinogen

For full text of abbreviations: see SECTION 16

SECTION 4: First aid measures

4.1 Description of first aid measures

General notes

Take off contaminated clothing.

Following inhalation

Provide fresh air. In all cases of doubt, or when symptoms persist, seek medical advice.

Following skin contact

Rinse skin with water/shower.

Following eye contact

Rinse cautiously with water for several minutes. In all cases of doubt, or when symptoms persist, seek medical advice.

Following ingestion

In case of accident or unwellness, seek medical advice immediately (show directions for use or safety data sheet if possible).

4.2 Most important symptoms and effects, both acute and delayed

Following inhalation: Cough, Vertigo, Headache,
Following skin contact: Has degreasing effect on the skin,
After eye contact: Conjunctival redness of the eyes, Conjunctivitis (pink eye),
Following ingestion: Abdominal pain, Malaise, Vomiting, Poisoning effect on central nervous system can cause convulsions, laboured breathing and loss of consciousness, Loss of righting reflex, and ataxia, Serious physical decay of vision, Risk of blindness, Large doses may result in coma and death

4.3 Indication of any immediate medical attention and special treatment needed

none

SECTION 5: Firefighting measures

5.1 Extinguishing media

Suitable extinguishing media

co-ordinate firefighting measures to the fire surroundings
water spray, dry extinguishing powder, BC-powder, carbon dioxide (CO_2)

Unsuitable extinguishing media

water jet

5.2 Special hazards arising from the substance or mixture

Combustible. In case of insufficient ventilation and/or in use, may form flammable/explosive vapour-air mixture. Solvent vapours are heavier than air and may spread along floors. Places which are not ventilated, e.g. unventilated below ground level areas such as trenches, conduits and shafts, are particularly prone to the presence of flammable substances or mixtures. Vapours may form explosive mixtures with air.

Hazardous combustion products

Carbon monoxide (CO), Carbon dioxide (CO_2), May produce toxic fumes of carbon monoxide if burning.

5.3 Advice for firefighters

In case of fire and/or explosion do not breathe fumes. Fight fire with normal precautions from a reasonable distance. Wear self-contained breathing apparatus.

SECTION 6: Accidental release measures

6.1 Personal precautions, protective equipment and emergency procedures

For non-emergency personnel

Use personal protective equipment as required. Avoid contact with skin, eyes and clothes. Do not breathe vapour/spray. Avoidance of ignition sources.

6.2 Environmental precautions

Keep away from drains, surface and ground water. Danger of explosion.

6.3 Methods and material for containment and cleaning up

Advice on how to contain a spill

Covering of drains.

Advice on how to clean up a spill

Absorb with liquid-binding material (sand, diatomaceous earth, acid- or universal binding agents).

Other information relating to spills and releases

Place in appropriate containers for disposal. Ventilate affected area.

6.4 Reference to other sections

Hazardous combustion products: see section 5. Personal protective equipment: see section 8. Incompatible materials: see section 10. Disposal considerations: see section 13.

SECTION 7: Handling and storage

7.1 Precautions for safe handling

Provision of sufficient ventilation. Avoid exposure.

Measures to prevent fire as well as aerosol and dust generation

Keep away from sources of ignition - No smoking.

Take precautionary measures against static discharge. Due to danger of explosion, prevent leakage

of vapours into cellars, flues and ditches.

Advice on general occupational hygiene

Wash hands before breaks and after work. Keep away from food, drink and animal feedingstuffs. When using do not smoke.

7.2 Conditions for safe storage, including any incompatibilities

Store in a well-ventilated place. Keep container tightly closed. Protect from sunlight. Keep in a cool place.

Incompatible substances or mixtures

Observe hints for combined storage.

Consideration of other advice:

Ground/bond container and receiving equipment.

Ventilation requirements

Use local and general ventilation.

Specific designs for storage rooms or vessels

Recommended storage temperature: -20 °C

7.3 Specific end use(s)

No information available.

SECTION 8: Exposure controls/personal protection

8.1 Control parameters

National limit values

Occupational exposure limit values (Workplace Exposure Limits)

Country	Name of agent	CAS No	Identifier	TWA [ppm]	TWA [mg/m³]	STEL [ppm]	STEL [mg/m³]	Ceiling-C [ppm]	Ceiling-C [mg/m³]	Notation	Source
AU	ethylbenzene	100-41-4	WES	100	434	125	543				WES
AU	xylene, mixture of isomers	108-38-3	WES	80	350	150	655				WES
AU	toluene	108-88-3	WES	50	191	150	574			H	WES
AU	perchloroethylene (tetrachloroethylene)	127-18-4	WES	50	340	150	1,020				WES
AU	carbon tetrachloride (tetrachloromethane)	56-23-5	WES	0.1	0.63					H	WES
AU	methyl alcohol (methanol)	67-56-1	WES	200	262	250	328			H	WES

Country	Name of agent	CAS No	Identifier	TWA [ppm]	TWA [mg/m³]	STEL [ppm]	STEL [mg/m³]	Ceiling-C [ppm]	Ceiling-C [mg/m³]	Notation	Source
AU	chloroform (trichloromethane)	67-66-3	WES	2	10					H	WES
AU	benzene	71-43-2	WES	1	3.2						WES
AU	1,1,1-trichloroethane (methyl chloroform)	71-55-6	WES	100	555	200	1,110				WES
AU	methylene chloride (dichloromethane)	75-09-2	WES	50	174					H	WES
AU	trichloroethylene	79-01-6	WES	10	54	40	216			H	WES

Notation

Ceiling-C Ceiling value is a limit value above which exposure should not occur
H Absorbed through the skin
STEL Short-term exposure limit: a limit value above which exposure should not occur and which is related to a 15-minute period (unless otherwise specified)
TWA Time-weighted average (long-term exposure limit): measured or calculated in relation to a reference period of 8 hours time-weighted average (unless otherwise specified)

Relevant DNELs of components of the mixture

Name of substance	CAS No	End-point	Threshold level	Protection goal, route of exposure	Used in	Exposure time
Methanol	67-56-1	DNEL	130 mg/m³	human, inhalatory	worker (industry)	chronic - systemic effects
Methanol	67-56-1	DNEL	130 mg/m³	human, inhalatory	worker (industry)	acute - systemic effects
Methanol	67-56-1	DNEL	130 mg/m³	human, inhalatory	worker (industry)	chronic - local effects
Methanol	67-56-1	DNEL	130 mg/m³	human, inhalatory	worker (industry)	acute - local effects
Methanol	67-56-1	DNEL	20 mg/kg bw/day	human, dermal	worker (industry)	chronic - systemic effects
Methanol	67-56-1	DNEL	20 mg/kg bw/day	human, dermal	worker (industry)	acute - systemic effects
Carbon tetrachloride	56-23-5	DNEL	1.29 mg/m³	human, inhalatory	worker (industry)	chronic - systemic effects
Carbon tetrachloride	56-23-5	DNEL	0.91 mg/kg bw/day	human, dermal	worker (industry)	chronic - systemic effects
Dichloromethane	75-09-2	DNEL	706 mg/m³	human, inhalatory	worker (industry)	acute - systemic effects
Dichloromethane	75-09-2	DNEL	176 mg/m³	human, inhalatory	worker (industry)	chronic - systemic effects
Dichloromethane	75-09-2	DNEL	12 mg/kg bw/day	human, dermal	worker (industry)	chronic - systemic effects
Toluene	108-88-3	DNEL	192 mg/m³	human, inhalatory	worker (industry)	chronic - systemic effects
Toluene	108-88-3	DNEL	384 mg/m³	human, inhalatory	worker (industry)	acute - systemic effects

Relevant DNELs of components of the mixture

Name of substance	CAS No	End-point	Threshold level	Protection goal, route of exposure	Used in	Exposure time
Toluene	108-88-3	DNEL	192 mg/m³	human, inhalatory	worker (industry)	chronic - local effects
Toluene	108-88-3	DNEL	384 mg/m³	human, inhalatory	worker (industry)	acute - local effects
Toluene	108-88-3	DNEL	384 mg/kg bw/day	human, dermal	worker (industry)	chronic - systemic effects
Trichloroethylene	79-01-6	DNEL	54.7 mg/m³	human, inhalatory	worker (industry)	chronic - systemic effects
Trichloroethylene	79-01-6	DNEL	164.1 mg/m³	human, inhalatory	worker (industry)	acute - systemic effects
Trichloroethylene	79-01-6	DNEL	7.8 mg/kg bw/day	human, dermal	worker (industry)	chronic - systemic effects
Trichloromethane	67-66-3	DNEL	2.5 mg/m³	human, inhalatory	worker (industry)	chronic - systemic effects
Trichloromethane	67-66-3	DNEL	333 mg/m³	human, inhalatory	worker (industry)	acute - systemic effects
Trichloromethane	67-66-3	DNEL	2.5 mg/m³	human, inhalatory	worker (industry)	chronic - local effects
Trichloromethane	67-66-3	DNEL	0.94 mg/kg bw/day	human, dermal	worker (industry)	chronic - systemic effects

Relevant PNECs of components of the mixture

Name of substance	CAS No	End-point	Threshold level	Organism	Environmental compartment	Exposure time
Methanol	67-56-1	PNEC	20.8 mg/l	aquatic organisms	freshwater	short-term (single instance)
Methanol	67-56-1	PNEC	2.08 mg/l	aquatic organisms	marine water	short-term (single instance)
Methanol	67-56-1	PNEC	100 mg/l	aquatic organisms	sewage treatment plant (STP)	short-term (single instance)
Methanol	67-56-1	PNEC	77 mg/kg	aquatic organisms	freshwater sediment	short-term (single instance)
Methanol	67-56-1	PNEC	7.7 mg/kg	aquatic organisms	marine sediment	short-term (single instance)
Methanol	67-56-1	PNEC	100 mg/kg	terrestrial organisms	soil	short-term (single instance)
Benzene	71-43-2	PNEC	80 µg/l	aquatic organisms	freshwater	short-term (single instance)
Benzene	71-43-2	PNEC	8 µg/l	aquatic organisms	marine water	short-term (single instance)
Benzene	71-43-2	PNEC	39 mg/l	aquatic organisms	sewage treatment plant (STP)	short-term (single instance)
Benzene	71-43-2	PNEC	1.36 mg/kg	aquatic organisms	freshwater sediment	short-term (single instance)

Relevant PNECs of components of the mixture

Name of substance	CAS No	End-point	Threshold level	Organism	Environmental compartment	Exposure time
Benzene	71-43-2	PNEC	0.136 mg/kg	aquatic organisms	marine sediment	short-term (single instance)
Benzene	71-43-2	PNEC	0.225 mg/kg	terrestrial organisms	soil	short-term (single instance)
Carbon tetrachloride	56-23-5	PNEC	0.22 mg/l	aquatic organisms	freshwater	short-term (single instance)
Carbon tetrachloride	56-23-5	PNEC	0.022 mg/l	aquatic organisms	marine water	short-term (single instance)
Carbon tetrachloride	56-23-5	PNEC	30 mg/l	aquatic organisms	sewage treatment plant (STP)	short-term (single instance)
Dichloromethane	75-09-2	PNEC	0.31 mg/l	aquatic organisms	freshwater	short-term (single instance)
Dichloromethane	75-09-2	PNEC	0.031 mg/l	aquatic organisms	marine water	short-term (single instance)
Dichloromethane	75-09-2	PNEC	26 mg/l	aquatic organisms	sewage treatment plant (STP)	short-term (single instance)
Dichloromethane	75-09-2	PNEC	2.57 mg/kg	aquatic organisms	freshwater sediment	short-term (single instance)
Dichloromethane	75-09-2	PNEC	0.26 mg/kg	aquatic organisms	marine sediment	short-term (single instance)
Dichloromethane	75-09-2	PNEC	0.33 mg/kg	terrestrial organisms	soil	short-term (single instance)
Toluene	108-88-3	PNEC	0.68 mg/l	aquatic organisms	freshwater	short-term (single instance)
Toluene	108-88-3	PNEC	0.68 mg/l	aquatic organisms	marine water	short-term (single instance)
Toluene	108-88-3	PNEC	13.61 mg/l	aquatic organisms	sewage treatment plant (STP)	short-term (single instance)
Toluene	108-88-3	PNEC	16.39 mg/kg	aquatic organisms	freshwater sediment	short-term (single instance)
Toluene	108-88-3	PNEC	16.39 mg/kg	aquatic organisms	marine sediment	short-term (single instance)
Toluene	108-88-3	PNEC	2.89 mg/kg	terrestrial organisms	soil	short-term (single instance)
Trichloroethylene	79-01-6	PNEC	0.115 mg/l	aquatic organisms	freshwater	short-term (single instance)
Trichloroethylene	79-01-6	PNEC	0.011 mg/l	aquatic organisms	marine water	short-term (single instance)
Trichloroethylene	79-01-6	PNEC	2.6 mg/l	aquatic organisms	sewage treatment plant (STP)	short-term (single instance)
Trichloroethylene	79-01-6	PNEC	2.04 mg/kg	aquatic organisms	freshwater sediment	short-term (single instance)
Trichloroethylene	79-01-6	PNEC	0.204 mg/kg	aquatic organisms	marine sediment	short-term (single instance)

Relevant PNECs of components of the mixture

Name of substance	CAS No	End-point	Threshold level	Organism	Environmental compartment	Exposure time
Trichloroethylene	79-01-6	PNEC	0.344 mg/kg	terrestrial organisms	soil	short-term (single instance)
Trichloromethane	67-66-3	PNEC	0.146 mg/l	aquatic organisms	freshwater	short-term (single instance)
Trichloromethane	67-66-3	PNEC	0.015 mg/l	aquatic organisms	marine water	short-term (single instance)
Trichloromethane	67-66-3	PNEC	0.048 mg/l	aquatic organisms	sewage treatment plant (STP)	short-term (single instance)
Trichloromethane	67-66-3	PNEC	0.45 mg/kg	aquatic organisms	freshwater sediment	short-term (single instance)
Trichloromethane	67-66-3	PNEC	0.09 mg/kg	aquatic organisms	marine sediment	short-term (single instance)
Trichloromethane	67-66-3	PNEC	0.56 mg/kg	terrestrial organisms	soil	short-term (single instance)

8.2 Exposure controls

Individual protection measures (personal protective equipment)

Eye/face protection

Use safety goggle with side protection.

Skin protection

• hand protection

Wear suitable gloves. Chemical protection gloves are suitable, which are tested according to EN 374. For special purposes, it is recommended to check the resistance to chemicals of the protective gloves mentioned above together with the supplier of these gloves. The times are approximate values from measurements at 22 ° C and permanent contact. Increased temperatures due to heated substances, body heat etc. and a reduction of the effective layer thickness by stretching can lead to a considerable reduction of the breakthrough time. If in doubt, contact manufacturer. At an approx. 1.5 times larger / smaller layer thickness, the respective breakthrough time is doubled / halved. The data apply only to the pure substance. When transferred to substance mixtures, they may only be considered as a guide.

• type of material

Butyl caoutchouc (butyl rubber)

• material thickness

0,7mm

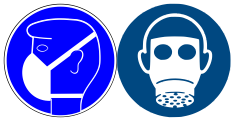
• breakthrough times of the glove material

>480 minutes (permeation: level 6)

• other protection measures

Take recovery periods for skin regeneration. Preventive skin protection (barrier creams/ointments) is recommended.
Flame-retardant protective clothing.

Respiratory protection



Respiratory protection necessary at: Aerosol or mist formation. Type: AX (gas filters and combined filters against low-boiling point organic compounds, colour code: Brown).

Environmental exposure controls

Keep away from drains, surface and ground water.

SECTION 9: Physical and chemical properties

9.1 Information on basic physical and chemical properties

Physical state	liquid
Colour	colourless - clear
Odour	like: - methanol
Melting point/freezing point	-98 °C
Boiling point or initial boiling point and boiling range	65 °C at 1,013 hPa
Flammability	flammable liquid in accordance with GHS criteria
Lower and upper explosion limit	5.5 vol% (LEL) - 44 vol% (UEL)
Flash point	10 °C at 1,013 Pa
Auto-ignition temperature	455 °C
Decomposition temperature	not relevant
pH (value)	not determined
Kinematic viscosity	not determined
Solubility(ies)	
Water solubility	(soluble)
Partition coefficient	
Partition coefficient n-octanol/water (log value):	this information is not available
Vapour pressure	128 hPa at 20 °C
Density and/or relative density	
Density	0.79 $^{g}/_{cm^3}$ at 20 °C
Relative vapour density	information on this property is not available

Particle characteristics	not relevant (liquid)

Other safety parameters

Oxidising properties	none

9.2 Other information

Information with regard to physical hazard classes:	There is no additional information.
Other safety characteristics:	There is no additional information.

SECTION 10: Stability and reactivity

10.1 Reactivity

The mixture contains reactive substance(s). Risk of ignition. Vapours may form explosive mixtures with air.

If heated

Risk of ignition.

10.2 Chemical stability

The material is stable under normal ambient and anticipated storage and handling conditions of temperature and pressure.

10.3 Possibility of hazardous reactions

Danger of explosion: Oxidisers, Perchlorates, Nitrogen oxides (NOx), Chlorates, Halogenated hydrocarbons, Hydrogen peroxide, Nitric acid, Sulphuric acid,
Exothermic reaction with: Reducing agents, Acids, Chlorine, Chloroform, Acid chlorides, inorganic,
Dangerous/dangerous reactions with: Fluorine, Alkali metals, Alkaline earth metal, strong oxidiser

10.4 Conditions to avoid

UV-radiation/sunlight. Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.

10.5 Incompatible materials

aluminium, iron, zinc, different plastics, Rubber articles

10.6 Hazardous decomposition products

Hazardous combustion products: see section 5.

SECTION 11: Toxicological information

11.1 Information on toxicological effects

Test data are not available for the complete mixture.

Classification procedure

The method for classification of the mixture is based on ingredients of the mixture (additivity formula).

Classification acc. to GHS

Acute toxicity

Shall not be classified as acutely toxic.

Acute toxicity estimate (ATE) of components of the mixture

Name of substance	CAS No	Exposure route	ATE
Carbon tetrachloride	56-23-5	dermal	300 $^{mg}/_{kg}$
Carbon tetrachloride	56-23-5	inhalation: vapour	3 $^{mg}/_{l}$/4h
Trichloromethane	67-66-3	oral	908 $^{mg}/_{kg}$
Trichloromethane	67-66-3	inhalation: vapour	3 $^{mg}/_{l}$/4h

Acute toxicity of components of the mixture

Name of substance	CAS No	Exposure route	Endpoint	Value	Species
Methanol	67-56-1	inhalation: vapour	LC50	131 $^{mg}/_{l}$/4h	rat
Methanol	67-56-1	oral	LD50	5,628 $^{mg}/_{kg}$	rat
Methanol	67-56-1	oral	LDLo	143 $^{mg}/_{kg}$	human
Methanol	67-56-1	dermal	LD50	15,800 $^{mg}/_{kg}$	rabbit
Benzene	71-43-2	oral	LD50	>2,000 $^{mg}/_{kg}$	rat
Benzene	71-43-2	inhalation: vapour	LC50	43,767 $^{mg}/_{m^3}$/4h	rat
Carbon tetrachloride	56-23-5	oral	LD50	2,500 $^{mg}/_{kg}$	rat
Dichloromethane	75-09-2	oral	LD50	>2,000 $^{mg}/_{kg}$	rat
Dichloromethane	75-09-2	dermal	LD50	>2,000 $^{mg}/_{kg}$	rat
Tetrachloroethylene	127-18-4	oral	LD50	3,835 $^{mg}/_{kg}$	rat
Toluene	108-88-3	oral	LD50	5,580 $^{mg}/_{kg}$	rat
Toluene	108-88-3	inhalation: vapour	LC50	28.1 $^{mg}/_{l}$/4h	rat
Toluene	108-88-3	dermal	LD50	>5,000 $^{mg}/_{kg}$	rabbit
Trichloroethylene	79-01-6	oral	LD50	4,920 $^{mg}/_{kg}$	rat
Trichloroethylene	79-01-6	dermal	LD50	20,000 $^{mg}/_{kg}$	rabbit
Trichloromethane	67-66-3	oral	LD50	908 $^{mg}/_{kg}$	rat

Skin corrosion/irritation

Shall not be classified as corrosive/irritant to skin.

Serious eye damage/eye irritation

Shall not be classified as seriously damaging to the eye or eye irritant.

Respiratory or skin sensitisation

Shall not be classified as a respiratory or skin sensitiser.

Germ cell mutagenicity

May cause genetic defects.

Carcinogenicity

May cause cancer.

Reproductive toxicity

Shall not be classified as a reproductive toxicant.

Specific target organ toxicity - single exposure

Causes damage to organs (eye).

Hazard category	Target organ	Exposure route
1	eye	if exposed

Specific target organ toxicity - repeated exposure

Shall not be classified as a specific target organ toxicant (repeated exposure).

Aspiration hazard

Shall not be classified as presenting an aspiration hazard.

Symptoms related to the physical, chemical and toxicological characteristics

• If swallowed

abdominal pain, vomiting, loss of righting reflex, and ataxia, poisoning effect on central nervous system can cause convulsions, laboured breathing and loss of consciousness, risk of blindness, large doses may result in coma and death

• If in eyes

conjunctivitis (pink eye)

• If inhaled

vertigo, cough, headache

• If on skin

has degreasing effect on the skin

• Other information

none

11.2 Endocrine disrupting properties

Contains an endocrine disruptor (EDC) in a concentration of ≥ 0,1%.

SECTION 12: Ecological information

12.1 Toxicity

Shall not be classified as hazardous to the aquatic environment.

Aquatic toxicity (acute) of components of the mixture

Name of substance	CAS No	Endpoint	Value	Species	Exposure time
Methanol	67-56-1	LC50	15,400 $^{mg}/_{l}$	fish	96 h
Methanol	67-56-1	ErC50	22,000 $^{mg}/_{l}$	algae	96 h
Benzene	71-43-2	LC50	5.3 $^{mg}/_{l}$	fish	96 h
Benzene	71-43-2	EC50	10 $^{mg}/_{l}$	aquatic invertebrates	48 h

Aquatic toxicity (acute) of components of the mixture

Name of substance	CAS No	Endpoint	Value	Species	Exposure time
Benzene	71-43-2	ErC50	100 mg/l	algae	72 h
Carbon tetrachloride	56-23-5	LC50	24.3 mg/l	fish	96 h
Carbon tetrachloride	56-23-5	ErC50	20 mg/l	algae	72 h
Dichloromethane	75-09-2	LC50	193 mg/l	fish	96 h
Tetrachloroethylene	127-18-4	LC50	5 mg/l	fish	96 h
Tetrachloroethylene	127-18-4	EC50	8.5 mg/l	aquatic invertebrates	48 h
Tetrachloroethylene	127-18-4	ErC50	3.64 mg/l	algae	72 h
Toluene	108-88-3	LC50	5.5 mg/l	fish	96 h
Toluene	108-88-3	EC50	84 mg/l	microorganisms	24 h
Trichloroethylene	79-01-6	LC50	28.3 mg/l	fish	96 h
Trichloroethylene	79-01-6	ErC50	36.5 mg/l	algae	72 h
Trichloromethane	67-66-3	EC50	152.5 mg/l	aquatic invertebrates	48 h
Trichloromethane	67-66-3	ErC50	13.3 mg/l	algae	72 h

Aquatic toxicity (chronic) of components of the mixture

Name of substance	CAS No	Endpoint	Value	Species	Exposure time
Dichloromethane	75-09-2	LC50	471 mg/l	fish	8 d
Dichloromethane	75-09-2	EC50	2,590 mg/l	microorganisms	40 min
Toluene	108-88-3	LC50	3.78 mg/l	aquatic invertebrates	2 d
Toluene	108-88-3	EC50	3.23 mg/l	aquatic invertebrates	7 d
Trichloroethylene	79-01-6	EC50	260 mg/l	microorganisms	3 h
Trichloromethane	67-66-3	EC50	0.48 mg/l	microorganisms	24 h

12.2 Persistence and degradability

Degradability of components of the mixture

Name of substance	CAS No	Process	Degradation rate	Time	Method	Source
Methanol	67-56-1	biotic/abiotic	99 %	30 d		
Methanol	67-56-1	oxygen depletion	69 %	5 d		ECHA
Dichloromethane	75-09-2	biotic/abiotic	5 – 26 %	28 d		
Dichloromethane	75-09-2	oxygen depletion	68 %	28 d		ECHA

Degradability of components of the mixture						
Name of substance	CAS No	Process	Degradation rate	Time	Method	Source
Toluene	108-88-3	biotic/abiotic	86 %	20 d		IUCLID
Trichloroethylene	79-01-6	oxygen depletion	19 %	28 d		ECHA
Trichloromethane	67-66-3	biotic/abiotic	0 %	14 d		

12.3 Bioaccumulative potential

Data are not available.

Bioaccumulative potential of components of the mixture				
Name of substance	CAS No	BCF	Log KOW	BOD5/COD
Methanol	67-56-1		-0.77	
Benzene	71-43-2	13	2.13 (pH value: 7, 25 °C)	
Carbon tetrachloride	56-23-5	≥14.5 – ≤20.3	2.83 (pH value: 7, 25 °C)	
Dichloromethane	75-09-2	39	1.25 (pH value: 7, 20 °C)	
Tetrachloroethylene	127-18-4	49	2.53 (pH value: ~7, 23 °C)	
Toluene	108-88-3	90	2.73 (pH value: 7, 20 °C)	
Trichloroethylene	79-01-6	17	2.53 (pH value: ~7, 20 °C)	
Trichloromethane	67-66-3		1.97 (25 °C)	

12.4 Mobility in soil

Data are not available.

12.5 Results of PBT and vPvB assessment

Data are not available.

12.6 Endocrine disrupting properties

Contains an endocrine disruptor (EDC) in a concentration of ≥ 0,1%.

12.7 Other adverse effects

Classified as hazardous to the ozone layer.

SECTION 13: Disposal considerations

13.1 Waste treatment methods

This material and its container must be disposed of as hazardous waste. Dispose of contents/container in accordance with local/regional/national/international regulations.

Sewage disposal-relevant information

Do not empty into drains.

Waste treatment of containers/packagings

Only packagings which are approved (e.g. acc. to the Dangerous Goods Regulations) may be used.

Relevant provisions relating to waste(Basel Convention)

Properties of waste which render it hazardous

H3 Flammable liquids
H11 Toxic (Delayed or chronic)

13.3 Remarks

Waste shall be separated into the categories that can be handled separately by the local or national waste management facilities. Please consider the relevant national or regional provisions.

SECTION 14: Transport information

14.1 UN number

UN RTDG	UN 1230
IMDG-Code	UN 1230
ICAO-TI	UN 1230

14.2 UN proper shipping name

UN RTDG	METHANOL
IMDG-Code	METHANOL
ICAO-TI	Methanol

14.3 Transport hazard class(es)

UN RTDG	3 (6.1)
IMDG-Code	3 (6.1)
ICAO-TI	3 (6.1)

14.4 Packing group

UN RTDG	II
IMDG-Code	II
ICAO-TI	II

14.5 Environmental hazards

non-environmentally hazardous acc. to the dangerous goods regulations

14.6 Special precautions for user

There is no additional information.

14.7 Transport in bulk according to IMO instruments

The cargo is not intended to be carried in bulk.

14.8 Information for each of the UN Model Regulations

Transport informationNational regulationsAdditional information(UN RTDG)

UN number	1230
Class	3
Subsidiary risk(s)	6.1
Packing group	II
Danger label(s)	3+6.1

Special provisions (SP)	279 UN RTDG
Excepted quantities (EQ)	E2 UN RTDG
Limited quantities (LQ)	1 L UN RTDG
Emergency Action Code	2WE

International Maritime Dangerous Goods Code (IMDG) - Additional information

Proper shipping name	METHANOL
Particulars in the shipper's declaration	UN1230, METHANOL, 3 (6.1), II, 10°C c.c.
Marine pollutant	-
Danger label(s)	3+6.1

Special provisions (SP)	279
Excepted quantities (EQ)	E2
Limited quantities (LQ)	1 L
EmS	F-E, S-D
Stowage category	B

International Civil Aviation Organization (ICAO-IATA/DGR) - Additional information

Proper shipping name	Methanol
Particulars in the shipper's declaration	UN1230, Methanol, 3 (6.1), II
Danger label(s)	3+6.1

Special provisions (SP)	A113
Excepted quantities (EQ)	E2
Limited quantities (LQ)	1 L

SECTION 15: Regulatory information

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

There is no additional information.

National regulations(Australia)

Australian Inventory of Chemical Substances(AICS)

All ingredients are listed or exempt from listing.

Other information

Directive 94/33/EC on the protection of young people at work. Observe employment restrictions under the Maternity Protection Directive (92/85/EEC) for expectant or nursing mothers.

UN Convention against Illicit Traffic in Narcotic Drugs and Psychotropic Substances

Name of substance	CAS No	Listed in	HS code
Toluene	108-88-3	Table II	2902.30

National inventories

Country	Inventory	Status
AU	AIIC	all ingredients are listed
CA	DSL	not all ingredients are listed
CA	NDSL	not all ingredients are listed
CN	IECSC	all ingredients are listed
EU	ECSI	all ingredients are listed
EU	REACH Reg.	not all ingredients are listed
JP	CSCL-ENCS	all ingredients are listed
JP	ISHA-ENCS	not all ingredients are listed
KR	KECI	all ingredients are listed
MX	INSQ	not all ingredients are listed
NZ	NZIoC	all ingredients are listed
PH	PICCS	not all ingredients are listed
TR	CICR	not all ingredients are listed
TW	TCSI	all ingredients are listed
US	TSCA	all ingredients are listed as "ACTIVE"

Legend

AIIC	Australian Inventory of Industrial Chemicals
CICR	Chemical Inventory and Control Regulation
CSCL-ENCS	List of Existing and New Chemical Substances (CSCL-ENCS)
DSL	Domestic Substances List (DSL)
ECSI	EC Substance Inventory (EINECS, ELINCS, NLP)
IECSC	Inventory of Existing Chemical Substances Produced or Imported in China
INSQ	National Inventory of Chemical Substances
ISHA-ENCS	Inventory of Existing and New Chemical Substances (ISHA-ENCS)
KECI	Korea Existing Chemicals Inventory
NDSL	Non-domestic Substances List (NDSL)
NZIoC	New Zealand Inventory of Chemicals
PICCS	Philippine Inventory of Chemicals and Chemical Substances (PICCS)
REACH Reg.	REACH registered substances
TCSI	Taiwan Chemical Substance Inventory

Legend
TSCA Toxic Substance Control Act

15.2 Chemical Safety Assessment

Chemical safety assessments for substances in this mixture were not carried out.

SECTION 16: Other information

Abbreviations and acronyms

Abbr.	Descriptions of used abbreviations
Acute Tox.	Acute toxicity
Asp. Tox.	Aspiration hazard
ATE	Acute Toxicity Estimate
BCF	Bioconcentration factor
BOD	Biochemical Oxygen Demand
Carc.	Carcinogenicity
CAS	Chemical Abstracts Service (service that maintains the most comprehensive list of chemical substances)
Ceiling-C	Ceiling value
COD	Chemical oxygen demand
DGR	Dangerous Goods Regulations (see IATA/DGR)
DNEL	Derived No-Effect Level
EC50	Effective Concentration 50 %. The EC50 corresponds to the concentration of a tested substance causing 50 % changes in response (e.g. on growth) during a specified time interval
EINECS	European Inventory of Existing Commercial Chemical Substances
ELINCS	European List of Notified Chemical Substances
EmS	Emergency Schedule
ErC50	≡ EC50: in this method, that concentration of test substance which results in a 50 % reduction in either growth (EbC50) or growth rate (ErC50) relative to the control
Eye Dam.	Seriously damaging to the eye
Eye Irrit.	Irritant to the eye
Flam. Liq.	Flammable liquid
GHS	"Globally Harmonized System of Classification and Labelling of Chemicals" developed by the United Nations
HS	Harmonized Commodity Description and Coding System (Harmonized System, drawn up by the World Customs Organisation)
IARC	International Agency for Research on Cancer
IATA	International Air Transport Association
IATA/DGR	Dangerous Goods Regulations (DGR) for the air transport (IATA)
ICAO	International Civil Aviation Organization
ICAO-TI	Technical instructions for the safe transport of dangerous goods by air
IMDG	International Maritime Dangerous Goods Code

Abbr.	Descriptions of used abbreviations
IMDG-Code	International Maritime Dangerous Goods Code
LC50	Lethal Concentration 50%: the LC50 corresponds to the concentration of a tested substance causing 50 % lethality during a specified time interval
LD50	Lethal Dose 50 %: the LD50 corresponds to the dose of a tested substance causing 50 % lethality during a specified time interval
LEL	Lower explosion limit (LEL)
log KOW	n-Octanol/water
Muta.	Germ cell mutagenicity
NLP	No-Longer Polymer
NTP-RoC	National Toxicology Program: Report on Carcinogens
PBT	Persistent, Bioaccumulative and Toxic
PNEC	Predicted No-Effect Concentration
ppm	Parts per million
Repr.	Reproductive toxicity
Skin Corr.	Corrosive to skin
Skin Irrit.	Irritant to skin
Skin Sens.	Skin sensitisation
STEL	Short-term exposure limit
STOT RE	Specific target organ toxicity - repeated exposure
STOT SE	Specific target organ toxicity - single exposure
TWA	Time-weighted average
UEL	Upper explosion limit (UEL)
UN RTDG	UN Recommendations on the Transport of Dangerous Good
vPvB	Very Persistent and very Bioaccumulative
WES	Safe Work Australia: Workplace exposure standards for airborne contaminants

Key literature references and sources for data

Safe Work Australia’s Code of Practice for Labelling of Workplace Hazardous Chemicals (under WHS Regulations).

UN Recommendations on the Transport of Dangerous Good. International Maritime Dangerous Goods Code (IMDG). Dangerous Goods Regulations (DGR) for the air transport (IATA).

Classification procedure

Physical and chemical properties. The classification is based on tested mixture.
Health hazards. Environmental hazards. The method for classification of the mixture is based on ingredients of the mixture (additivity formula).

List of relevant phrases (code and full text as stated in section 2 and 3)

Code	Text
H225	Highly flammable liquid and vapour.
H301	Toxic if swallowed.
H302	Harmful if swallowed.
H304	May be fatal if swallowed and enters airways.
H311	Toxic in contact with skin.
H315	Causes skin irritation.
H317	May cause an allergic skin reaction.
H319	Causes serious eye irritation.
H331	Toxic if inhaled.
H336	May cause drowsiness or dizziness.
H340	May cause genetic defects.
H341	Suspected of causing genetic defects.
H350	May cause cancer.
H351	Suspected of causing cancer.
H361d	Suspected of damaging the unborn child.
H370	Causes damage to organs (eye).
H372	Causes damage to organs through prolonged or repeated exposure.
H373	May cause damage to organs through prolonged or repeated exposure.

Disclaimer

This information is based upon the present state of our knowledge. This SDS has been compiled and is solely intended for this product.