

Safety Data Sheet

According to Regulation (EG) 1907/2006, Annex II

Date created 31.07.2017

edited on: 17.11.2017

Trade name: QE CHARGE methanol cartridge

Order number: E-093-000015

Section 1: Identification of Substance/Mixture and Company

1.1. Product identifier

Trade name	QE CHARGE methanol cartridge
Article number	E-093-000008
Registration number (REACH)	01-2119433307-44-xxxx
Index number	603-001-00-X
EG number	200-659-6
CAS number	67-56-1

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

No further information available.

Use of substance / mixture: fuel cell

1.3. Details of the supplier of the safety data sheet

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 Germany
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 Email: info@siqens.de
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Information department: Product safety
 Data sheet provider: info@siqens.de

1.4. Emergency number:

Munich Poison Emergency Number: +49 89 / 19 240

Section 2: Hazard Identification

2.1 Classification of substance or mixture

Classification according to Regulation (EG) Nr. 1272/2008

Hazard class and category	Section	Hazard class	Hazard statement
Flam. Liq. 2	2.6	Highly flammable liquid and vapour	H225
Acute Tox. 3	3.10	Toxic if swallowed	H301
Acute Tox. 3	3.1D	Toxic in contact with skin	H311
Acute Tox. 3	3.1I	Toxic if inhaled	H331

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STOT SE 1	3.8	Causes damage to the central nervous system and eyes	H370
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2.2 Label elements

Labelling according to Regulation (EG) Nr. 1272/2008

The substance is classified and labelled according to Regulation CLP.

Hazard pictogram


GHS02

GHS06

GHS08

Signal word

Danger

Danger notice

H225	Highly flammable liquid and vapour.
H301+H311+H331	Toxic if swallowed, in skin contact or inhaled.
H370	Causes damage to the central nervous system and eyes

Safety notice
Safety notices – prevention

P210	Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.
P260	Avoid inhaling mist/vapour/aerosols.
P403	Keep in well-ventilated place.
P405	Store locked up.

Safety notices – reaction

P301+P310	IF SWALLOWED: Immediately call POISON INFORMATION CENTER/doctor.
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2.3 Other hazards

No further information available.

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Section 3: Composition/Information on Ingredients

3.1 Substance

Substance name	Methanol
Index number	603-001-00-X
Registration number (REACH)	01-2119433307-44-xxxx
EG number	200-659-6
CAS number	67-56-1
Total formula	CH4O
Molar mass	32.04 g/mole

Section 4: First Aid Measures

4.1 Identification of first aid measures

General notices

Remove clothes contaminated by the product immediately. Remove respirators only when contaminated clothes have been removed. Perform artificial respiration in case of irregular breathing or respiratory arrest. Poison symptoms may only appear hours after the incident. Medical monitoring must occur for at least 48 hours after the accident.

After inhalation

Ensure fresh air or oxygen supply; call for medical aid. If consciousness lost, place and transport in stable recovery position. No mouth-to-mouth or mouth-to-nose respiration. Respiration using resuscitation bag or respirator.

After skin contact

In case of skin contact, wash immediately with lots of water and soap. Large-scale skin contact may cause poisoning. Call medical aid immediately.

After eye contact

In case of eye contact, wash out immediately with water and consult with doctor.

After swallowing

Cause vomiting, if patient is conscious. Call medical aid. Ensure fresh air. Drink ethanol (e.g. 1 glass full with 40 % alcoholic drink). Call doctor (indicate methanol).

4.2 Important acute and delayed symptoms and effects

After eye contact: reddening of the eye, swelling of the eye (chemosis), conjunctivitis (inflammation of the conjunctiva)

After skin contact: Local reddening

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After swallowing: Sickness, dizziness, vomiting, narcotic effect, high dosage can lead to coma and death. May result in headache and dizziness, even loss of consciousness, danger of blinding.

After inhalation: Coughing

4.3 Notice for immediate medical aid or special treatment

No further information available.

Section 5: Measures against Fire

5.1 Fire-extinguishing agents

Suitable fire-extinguishing agents

Fire-extinguishing measures must be suitable to the location: Carbon dioxide (CO₂), extinguishing powder or water spray. Extinguish larger fires with water spray or alcohol-resistant foam.

Unsuitable fire-extinguishing agents for safety reasons

Full jet water

5.2 Special hazards associated with the substance/mixture

Flammable. Vapour is heavier than air, spreads out at ground level and generates explosive mixture in combination with air. Use may lead to explosive/flammable vapour/air mixture.

Hazardous combustion products

In case of fire, may generate: Carbon monoxide (CO), carbon dioxide (CO₂)

5.3 Notes on combating fire

Extinguish fire with usual precautions from sufficient distance. Wear self-contained breathing apparatus. Wear full chemical protection overalls. Fire residues and contaminated extinguishing water must be disposed off according to official regulations.

Special protection equipment for combating fire.

Protective clothing against liquid and gaseous chemicals, including liquid aerosols and solid particles. Self-contained breathing apparatus (SCBA). Self-contained breathing apparatus (autonomous breathing apparatus, EN 133).

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Section 6: Accidental Release Measures

6.1 Personal precautions, protective equipment and emergency procedures

Not for emergency trained personnel

Use of suitable protective clothing (including the personal protective clothing specified under Section 8 of this data sheet) to avoid contamination of skin, eyes and personal clothing. Avoid contact with skin, eyes and clothing. Keep unprotected persons away. Do not inhale vapour/aerosols and ensure sufficient ventilation. Avoid ignition sources.

6.2 Environmental measures

Prevent seepage into sewer system, pits and cellars. Prevent seepage into sewer system or waterways. In case of seepage into waterways or sewer system, notify relevant authorities immediately. Dilute with lots of water. Explosion hazard.

6.3 Methods and material for containment and clean up

Notices on procedures to prevent spilled material from spreading further

Cover sewer system

Notices on procedures to clean up after spillage

Use liquid-binding material (sand, diatomaceous earth, acid binder, universal binder, saw dust)

Further details on spillage and release

Take to disposal in suitable container. Ventilate affected area.

6.4 Reference to other sections

Dangerous combustion products: see Section 5

Personal protective equipment: see Section 8

Incompatible materials: see Section 10

Details on disposal: see Section 13

Section 7: Handling and Storage

7.1 Precautions for safe handling

Keep containers tightly sealed. Ensure sufficient ventilation, also at ground level.

Measures to avoid fires as well as aerosol and dust generation.

Keep away from ignition sources – no smoking. Take precautions against electrostatic charges. Take explosion prevention measures due to vapours entering cellars, sewage systems and pits.

WARNING: Vapour is heavier than air, spreads out at ground level and generates explosive mixture in combination with air.

7.2 Conditions for safe storage, including any incompatibilities

Requirements for storage rooms and containers

Only store in original container. Ensure extinguishing substance resistant and solid floor. Use local and general ventilation. Recommended storage temperature: 15-25°C

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Combined storage notices

Store separate from food.

Further details on storage conditions

Keep locked away or only accessible by trained or authorised personnel. Keep locked and out of reach of children.

Classification according to Industrial Safety Regulation (German: BetrSichV)

Highly flammable

7.3 Specific end use

No further information available.

Section 8: Limitation and Monitoring of Exposure /Personal Protective Equipment

8.1 Monitoring parameter
National limits
Limits for the workplace exposure (vocational limits)

Country	Substance	CAS No.	Identifier	Long-term exposure limits	Source
DE	Methanol	67-56-1	AGW	270 mg/m ³ ; 200 ml/m ³	TRGS 900
EU	Methanol	67-56-1	IOELV	260 mg/m ³ ; 200 ml/m ³	2006/15/EG

Biological limits

Country	Substance	Parameter	Identifier	Value	Material	Source
DE	Methanol	Methanol	BLV	30 mg/l	Urine	TRGS 903

Sampling based on long-term exposure following multiple previous shifts, exposure end or shift end.

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Relevant DNEL/PNEC and other threshold values

Essential values relating to human health

Endpoint	Threshold value	Protection goal, exposure route	Area of application	Exposure duration
DNEL	8 mg/kg	Human, oral	Workers (Industry)	Acute, locale effects
DNEL	40 mg/kg (bw)	Human, dermal	Workers (Industry)	Acute, systemic effects
DNEL	40 mg/kg (bw/day)	Human, dermal	Workers (Industry)	Chronic, systemic effects
DNEL	260 mg/m ³	Human, inhalable	Workers (Industry)	Acute, locale effects
DNEL	260 mg/m ³	Human, inhalable	Workers (Industry)	Chronic, locale effects
DNEL	260 mg/m ³	Human, inhalable	Workers (Industry)	Chronic, systemic effects

Essential values relating to the environment

Description	Threshold value	Environmental compartment	Exposure duration
PNEC	20.8 mg/l	Fresh water	Short-term (once)
PNEC	154 mg/cm ³	Fresh water	Continuous
PNEC	77 mg/kg	Fresh water sediment	Short-term (once)
PNEC	570 mg/cm ³	Fresh water sediment	Continuous
PNEC	2.08 mg/l	Salt water	Short-term (once)
PNEC	15 mg/cm ³	Salt water	Continuous
PNEC	7.7 mg/kg	Salt water sediment	Short-term (once)
PNEC	1540 mg/l	Water	Continuous
PNEC	3.18 mg/kg	Soil	Short-term (once)
PNEC	24 mg/cm ³	Soil	Continuous
PNEC	100 mg/cm ³	Sewage treatment plant (STP)	Short-term (once)
PNEC	100 mg/cm ³	Sewage treatment plant (STP)	Continuous

8.2 Restriction and monitoring of exposure

Individual protective measures (personal protective equipment)

General protection and hygiene measures

Keep away from food, drinks and animal feed. Immediately remove contaminated clothing. Wash hands before breaks and after work. Separate storage of protective clothing. Avoid contact with eyes and skin.

Hand protection

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Wear suitable hand protection (according to EN 374, certified chemical protection gloves). Check for leaks/tightness before use. It is recommended to verify the chemical-protective properties of the above mentioned gloves for special use with the glove manufacturer. Glove material: Butyl rubber, material strength: > 0.5 mm, permeation time: > 480 minutes (permeation level: 6), other protective measures: Ensure recovery phases for skin regeneration. Precautionary skin protection (protective creams/ointments) is recommended. Flame-resistant clothing.

Eye/face protection

Use densely closing frame glasses with side protection.

Body protection

Use protective clothing

Containment and monitoring of environmental exposition

Prevent seepage into sewer system or surface or sub-surface waters.

Section 9: Physical and chemical Features

9.1 Details on the basic physical and chemical features

Physical state

Aggregate condition	Liquid (liquid)
Colour	Colourless
Odour	Alcoholic

State changes

Melting point/melting range	-98 °C
Initial boiling point/boiling range	64.7 °C

Flash point	11 °C
Flash point	455 °C

Explosive hazard The product is not an explosive hazard. Possible build up of explosive hazard vapour / air mixture.

Explosive limits

Lower	5.5 Vol-%
Upper	50 Vol-%

Vapour pressure at 20°C 170 hPa

Density at 20 °C 0.79 g/cm³

Solubility

Water solubility Fully soluble

9.2 Other details

No further information available.

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Section 10: Stability and Reaction

10.1 Reaction

Flammability hazard. Vapours can generate explosive mixtures when mixed with air.

10.2 Chemical stability

Under normal surrounding conditions and with normal storage and handling at expected temperature and pressure conditions, the material will remain stable.

10.3 Possibility of hazardous reactions

Due to the high vapour pressure, increase in temperature may lead to container bursting risk. Explosive gas mixture in combination with air. Unclean empty container may contain product gases, which combined with air can create explosive mixture.

10.4 Conditions to avoid

No special conditions to avoid are known.

10.5 Incompatible materials

Aluminium, iron, zinc

10.6 Hazardous decomposition products

No hazardous decomposition products when stored and used as directed.

Section 11: Toxicological Details

11.1 Details on toxicological effects

Acute toxicity

Toxic when swallowed, skin contact or inhaled.

Classification relevant LD/LC50 values

Exposure route	Endpoint	Value	Species
Inhalable: Vapour	LC50/4h	6.4 – 128.2 mg/l	Rat
Oral	LD50	300 mg/kg	General
	LD50	2769 mg/kg	Rat
	LDLO Human	143 mg/kg	Human
Dermal	LD50	1000 mg/kg	General
		15800 – 17100 mg/kg	Rabbit (ECHA)
		2769 mg/kg	Rat

Corrosive/irritant effect on the skin

Based on the available data, the classification criteria are not fulfilled.

Serious eye damage /eye irritation

Based on the available data, the classification criteria are not fulfilled.

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Sensitisation of respiratory pathways or skin

Based on the available data, the classification criteria are not fulfilled.

Additional toxicological notices

The product is a mixture, for which there is no experimentally generated toxicity data.

Conclusion of the assessment of the CMR properties (carcinogen, mutagenic and reprotoxic effects)

Is not classified as nucleus-mutagenic (mutagen), carcinogen or reprotoxic.

Specific target organ toxicity for single exposure

Damages the central nervous system, eyes and organs.

Specific target organ toxicity for repeated exposure

Is not classified as specific target organ toxicity (repeated exposure).

Aspiration hazard

Is not classified as an aspiration hazard.

Section 12: Environmental Details

12.1 Toxicity

According to 1272/2008/EG: Non hazardous for aquatic environments.

(Acute) aquatic toxicity

Endpoint	Value	Species	Source	Exposure duration
LC50	15 400 mg/l	Fish	ECHA	96 hours
EC50	12 700 mg/l	Fish	ECHA	96 hours
ErC50	22 000 mg/l	Algae	ECHA	96 hours

(Chronic) aquatic toxicity

Endpoint	Value	Species	Source	Exposure duration
LOEC	47.49 mg/l	Fish	ECHA	90 days
NOEC	23.5 mg/l	Fish	ECHA	90 days

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12.2 Persistence and degradability

The substance is biologically degradable. Theoretical oxygen requirement: 1.5 g/g; theoretical carbon dioxide: 1.374 mg/mg; bio-chemical oxygen requirement: 0.6– 1.12 g/g for 5h

Process	Degradation rate	Time
Biotic/abiotic	99 %	30 days
Oxygen consumption	76 %	5 days

12.3 Bioaccumulation potential

No significant accumulation within the organism. n-octanol/water (log KOW) -0.77

12.4 Soil mobility

No further information available.

12.5 Results of the PBT and vPvB assessment

Not applicable.

12.6 Other hazardous effects

Water hazard class 1 (DE) (list classification): slight water hazard, prevent seepage of non-diluted or large quantities into the groundwater, waterways or the sewer system.

Section 13: Notices on Disposal

13.1 Disposal procedure

Dispose of content/container in accordance with the local/regional/national/international disposal regulations.

13.2 Relevant legal regulations for disposal

The allocation of waste code numbers/waste identification according to EAKV must be industry and process specific.

13.3 Remarks

Waste must be separated so that municipal or national waste disposal companies can handle it separately. Please take note of the relevant national or regional regulations.

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Section 14: Notices on Transport

ATTENTION: The UN 3473 classification is on valid for the original QE CHARGE methanol fuel cell cartridge.

14.1 UN number

UN 3473

14.2 In accordance to UN shipping name

FUEL CELL CARTRIDGE / FUEL CELL CARTRIDGES

14.3 Transport hazard classes

ADR


Class	3 (F3) Flammable liquid substance
Hazard label	3

IMDG, IATA


Class	3 Flammable liquid substance
Label	3

14.4 Packaging group

ADR, IMDG, IATA	cancelled
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14.5 Environmental hazards

None (no environmental hazard according to hazardous goods regulations)

14.6 Special precautions for the user

Kemler number	33
EMS number	F-E, S-D
Stowage category	A

14.7 Transport in bulk according to Annex II of MARPOL Convention and IBC code

Not applicable.

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14.8 Details for individual UN Model Regulations

ADR Transport of hazardous goods by road

Limited quantities (LQ)	1 L
Excepted quantities (EQ)	Code: E0 not permitted as excepted quantity
Transport category	3
Tunnel restriction code	(E)

IMDG

Limited quantities (LQ)	1 L
Excepted quantities (EQ)	Code: E0 not permitted as excepted quantity
UN Model Regulation	UN 3473 FUELCELL CARTRIDGE, 3

Section 15: Legal Regulations

15.1 Regulations for safety, health and environmental protection /specific legal regulations for substance or mixture

REGULATION (EG) No. 1907/2006 ANNEX XVII restrictive conditions: 3, 40

National regulations:

Water hazard class: WGK 1 (DE) (list classification): slight water hazard

15.2 Chemical safety assessment

A chemical safety assessment was not conducted.

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Section 16: Other Details**Abbreviations and acronyms**

ADR	Accord européen sur le transport des marchandises dangereuses par route (European Agreement concerning the International Carriage of Dangerous Goods by Road)
IMDG	International Maritime Code for Dangerous Goods
IATA	International Air Transport Association
GHS	Globally Harmonised System of Classification and Labelling of Chemicals
EINECS	European Inventory of Existing Commercial Chemical Substances
CAS	Chemical Abstracts Service (division of the American Chemical Society)
DNEL	Derived No-Effect Level (REACH)
PNEC	Predicted No-Effect Concentration (REACH)
LC50	Lethal concentration, 50 percent
LD50	Lethal dose, 50 percent
PBT	Persistent, Bioaccumulative and Toxic
vPvB	very Persistent and very Bioaccumulative
Flam. Liq 2	Flammable Liquids – Category 2
Acute Tox. 3	Acute Toxicity – Category 3
STOT SE 1	Specific Target Organ Toxicity (following exposure) – Category 1

Disclaimer

The claims made in this safety data sheet are based on our present knowledge at the time of presentation. They do not guarantee product features and are not the basis for legal contracts. The information are points of orientation for your safe handling of the product specified in this safety data sheet with regards to storage, use, transport and disposal.