

# Safety Data Sheet

according to Regulation (EC) No. 1907/2006 (REACH)

## TJEP Fuel Cell, yellow ring

Version number: GHS 3.0A  
Replaces version of: 30.08.2022 (GHS 2)

revision: 28.10.2022

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

#### 1.1 Product identifier

Trade name

**TJEP Fuel Cell, yellow ring**

Registration number (REACH)

not relevant (mixture)

#### Other means of identification

article number

TJEP #100851, 100880, 100881, 100882

UFI

8U33-3J3C-VC0C-0QCD

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

Relevant identified uses

professional use

industrial use

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

OK Befestigung GmbH & Co. KG

Liesentorweg 19 a

47802 Krefeld

Germany

Telephone: + 49 (0) 2151 / 95 36 39

Telefax: + 49 (0) 2151 / 95 36 49

e-mail: [vertrieb@okbefestigung.de](mailto:vertrieb@okbefestigung.de)

Website: [www.okbefestigung.de](http://www.okbefestigung.de)

#### 1.4 Emergency telephone number

Emergency information service

National Poison Information Service (NPIS)  
0845 46 47

### SECTION 2: Hazards identification

#### 2.1 Classification of the substance or mixture

Classification according to Regulation (EC) No 1272/2008 (CLP)

Section	Hazard class	Cat-egory	Hazard class and category	Hazard state-ment
2.3	aerosols	Cat. 1	(Aerosol 1)	H222,H229

#### Remarks

For full text of H-phrases: see SECTION 16.

#### 2.2 Label elements

Labelling according to Regulation (EC) No 1272/2008 (CLP)

**Signal word**

**Danger**

**Pictograms**

GHS02



#### **Hazard statements**

H222

Extremely flammable aerosol.

H229

Pressurised container: May burst if heated.

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### Precautionary statements

#### Precautionary statements - prevention

P210 Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.  
P211 Do not spray on an open flame or other ignition source.  
P251 Do not pierce or burn, even after use.

#### Precautionary statements - storage

P410+P412 Protect from sunlight. Do not expose to temperatures exceeding 50 °C/122 °F.

### 2.3 Other hazards

There is no additional information.

#### Results of PBT and vPvB assessment

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




## SECTION 3: Composition/information on ingredients

### 3.1 Substances

not relevant (mixture)

### 3.2 Mixtures

#### Description of the mixture

Name of substance	Identifier	wt%	Classification acc. to 1272/2008/EC	Pictograms
But-1-ene	CAS No 106-98-9  EC No 203-449-2  REACH Reg. No 01-2119456615-34- xxxx	25 - < 50	Flam. Gas 1A / H220 Press. Gas L / H280	
Propene	CAS No 115-07-1  EC No 204-062-1  REACH Reg. No 01-2119447103-50- xxxx 01-2119860639-24- xxxx	25 - < 50	Flam. Gas 1A / H220 Press. Gas C / H280	
propane	CAS No 74-98-6  EC No 200-827-9  REACH Reg. No 01-2119486944-21- xxxx	10 - < 25	Flam. Gas 1A / H220 Press. Gas L / H280	

For full text of abbreviations: see SECTION 16.

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### SECTION 4: First aid measures

#### 4.1 Description of first aid measures

##### General notes

Do not leave affected person unattended. Remove victim out of the danger area. Keep affected person warm, still and covered. Take off immediately all contaminated clothing. In all cases of doubt, or when symptoms persist, seek medical advice. In case of unconsciousness place person in the recovery position. Never give anything by mouth.

##### Following inhalation

If breathing is irregular or stopped, immediately seek medical assistance and start first aid actions. Provide fresh air.

##### Following skin contact

Wash with plenty of soap and water.

##### Following eye contact

Remove contact lenses, if present and easy to do. Continue rinsing. Irrigate copiously with clean, fresh water for at least 10 minutes, holding the eyelids apart.

##### Following ingestion

Rinse mouth with water (only if the person is conscious). Do NOT induce vomiting.

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

Symptoms and effects are not known to date.

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

none

### SECTION 5: Firefighting measures

#### 5.1 Extinguishing media

##### Suitable extinguishing media

water spray, BC-powder

##### Unsuitable extinguishing media

water jet

#### 5.2 Special hazards arising from the substance or mixture

##### Hazardous combustion products

carbon monoxide (CO), carbon dioxide (CO<sub>2</sub>)

#### 5.3 Advice for firefighters

In case of fire and/or explosion do not breathe fumes. Co-ordinate firefighting measures to the fire surroundings. Do not allow firefighting water to enter drains or water courses. Collect contaminated firefighting water separately. Fight fire with normal precautions from a reasonable distance.

### SECTION 6: Accidental release measures

#### 6.1 Personal precautions, protective equipment and emergency procedures

##### For non-emergency personnel

Remove persons to safety.

##### For emergency responders

Wear breathing apparatus if exposed to vapours/dust/spray/gases.

#### 6.2 Environmental precautions

Keep away from drains, surface and ground water. Retain contaminated washing water and dispose of it.

#### 6.3 Methods and material for containment and cleaning up

##### Advice on how to contain a spill

Covering of drains.

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### 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

#### Recommendations

#### • Measures to prevent fire as well as aerosol and dust generation

Use local and general ventilation. Use only in well-ventilated areas.

#### Advice on general occupational hygiene

Wash hands after use. Do not eat, drink and smoke in work areas. Remove contaminated clothing and protective equipment before entering eating areas. Never keep food or drink in the vicinity of chemicals. Never place chemicals in containers that are normally used for food or drink. Keep away from food, drink and animal feedings.

### 7.2 Conditions for safe storage, including any incompatibilities

#### Managing of associated risks

#### • Flammability hazards

Do not spray on an open flame or other ignition source. Protect from sunlight.

#### Incompatible substances or mixtures

Observe hints for combined storage.

#### Consideration of other advice

#### • Packaging compatibilities

Only packagings which are approved (e.g. acc. to ADR) may be used.

### 7.3 Specific end use(s)

See section 16 for a general overview.

## SECTION 8: Exposure controls/personal protection

### 8.1 Control parameters

#### National limit values

#### Occupational exposure limit values (Workplace Exposure Limits)

No information available.

### 8.2 Exposure controls

#### Appropriate engineering controls

General ventilation.

#### Individual protection measures (personal protective equipment)

Personal protective equipment shall be used when the risks cannot be avoided or sufficiently limited by technical means of collective protection or by measures, methods or procedures of work organization.

#### Eye/face protection

Wear eye/face protection.

#### Skin protection

#### • hand protection

Wear suitable gloves. Check leak-tightness/impermeability prior to use. 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.

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### • other protection measures

Take recovery periods for skin regeneration. Preventive skin protection (barrier creams/ointments) is recommended. Wash hands thoroughly after handling.

### Respiratory protection

[In case of inadequate ventilation] wear respiratory protection.

### Environmental exposure controls

Use appropriate container to avoid environmental contamination. Keep away from drains, surface and ground water.

## SECTION 9: Physical and chemical properties

### 9.1 Information on basic physical and chemical properties

#### Appearance

Physical state	aerosol (spray aerosol)
Colour	colourless to yellow
Odour	characteristic

#### Other physical and chemical parameters

pH (value)	not determined
Melting point/freezing point	-185 °C
Initial boiling point and boiling range	-161,5 °C at 1.013 hPa
Flash point	-87 °C at 1.013 hPa
Evaporation rate	not determined
Flammability (solid, gas)	Flammable aerosol in accordance with GHS criteria
Explosive limits	
• lower explosion limit (LEL)	1,6 vol%
• upper explosion limit (UEL)	15 vol%
Vapour pressure	not determined
Density	not determined
Relative density	Information on this property is not available.
Solubility(ies)	not determined
Partition coefficient	
n-octanol/water (log KOW)	This information is not available.
Auto-ignition temperature	287 °C (auto-ignition temperature (liquids and gases))
Viscosity	not relevant (aerosol)
Explosive properties	none
Oxidising properties	none

### 9.2 Other information

Solvent content	2,22 %
Solid content	0 %
propellant content	97,78 %

## SECTION 10: Stability and reactivity

### 10.1 Reactivity

Concerning incompatibility: see below "Conditions to avoid" and "Incompatible materials". The mixture contains reactive substance(s): risk of ignition

### 10.2 Chemical stability

See below "Conditions to avoid".

### 10.3 Possibility of hazardous reactions

No known hazardous reactions.

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### 10.4 Conditions to avoid

Do not spray on an open flame or other ignition source. - Keep away from heat.

#### Hints to prevent fire or explosion

Protect from sunlight.

#### Physical stresses which might result in a hazardous situation and have to be avoided

strong shocks

### 10.5 Incompatible materials

oxidisers

### 10.6 Hazardous decomposition products

Reasonably anticipated hazardous decomposition products produced as a result of use, storage, spill and heating are not known. 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 according to GHS (1272/2008/EC, CLP)

##### Acute toxicity

Shall not be classified as acutely toxic.

GHS of the United Nations, annex 4: May be harmful in contact with skin.

##### 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.

##### Summary of evaluation of the CMR properties

Shall not be classified as germ cell mutagenic, carcinogenic nor as a reproductive toxicant.

##### Specific target organ toxicity (STOT)

Shall not be classified as a specific target organ toxicant.

##### Aspiration hazard

Shall not be classified as presenting an aspiration hazard.

## SECTION 12: Ecological information

### 12.1 Toxicity

Shall not be classified as hazardous to the aquatic environment.

#### Aquatic toxicity (acute)

#### Aquatic toxicity (acute) of components of the mixture

Name of substance	CAS No	Endpoint	Value	Species	Exposure time
But-1-ene	106-98-9	LC50	19 mg/l	fish	96 h
But-1-ene	106-98-9	EC50	6,5 mg/l	algae	96 h
Propene	115-07-1	LC50	51,7 mg/l	fish	96 h

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Name of substance	CAS No	Endpoint	Value	Species	Exposure time
Propene	115-07-1	EC50	12,1 mg/l	algae	96 h
propane	74-98-6	LC50	27,98 mg/l	fish	96 h
propane	74-98-6	EC50	7,71 mg/l	algae	96 h

### 12.2 Persistence and degradability

Data are not available.

### 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
But-1-ene	106-98-9		2,4	
Propene	115-07-1		1,77 (pH value: 7, 20 °C)	
propane	74-98-6		1,09 (pH value: 7, 20 °C)	

### 12.4 Mobility in soil

Data are not available.

### 12.5 Results of PBT and vPvB assessment

Data are not available.

### 12.6 Other adverse effects

Data are not available.

## SECTION 13: Disposal considerations

### 13.1 Waste treatment methods

#### Sewage disposal-relevant information

Do not empty into drains. Avoid release to the environment. Refer to special instructions/safety data sheets.

#### Waste treatment of containers/packagings

It is a dangerous waste; only packagings which are approved (e.g. acc. to ADR) may be used. Completely emptied packages can be recycled. Handle contaminated packages in the same way as the substance itself.

#### Remarks

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

## SECTION 14: Transport information

14.1	UN number	1950
14.2	UN proper shipping name	AEROSOLS
14.3	Transport hazard class(es)	
	Class	2 (gases) (aerosol)
	Subsidiary risk(s)	2.1 (flammability)
14.4	Packing group	not assigned to a packing group
14.5	Environmental hazards	none (non-environmentally hazardous acc. to the dangerous goods regulations)
14.6	Special precautions for user	
	Provisions for dangerous goods (ADR) should be complied within the premises.	

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### 14.7 Transport in bulk according to Annex II of MARPOL and the IBC Code

The cargo is not intended to be carried in bulk.

#### Information for each of the UN Model Regulations

##### • Transport of dangerous goods by road, rail and inland waterway (ADR/RID/ADN)

UN number	1950
Proper shipping name	AEROSOLS
Class	2
Classification code	5F
Danger label(s)	2.1



Special provisions (SP)	190, 327, 344, 625
Excepted quantities (EQ)	E0
Limited quantities (LQ)	1 L
Transport category (TC)	2
Tunnel restriction code (TRC)	D

##### • International Maritime Dangerous Goods Code (IMDG)

UN number	1950
Proper shipping name	AEROSOLS
Class	2.1
Danger label(s)	2.1



Special provisions (SP)	63, 190, 277, 327, 344, 381, 959
Excepted quantities (EQ)	E0
Limited quantities (LQ)	1 L
EmS	F-D, S-U
Stowage category	-

##### • International Civil Aviation Organization (ICAO-IATA/DGR)

UN number	1950
Proper shipping name	Aerosols, flammable
Class	2.1
Danger label(s)	2.1



Special provisions (SP)	A145, A167
Excepted quantities (EQ)	E0
Limited quantities (LQ)	30 kg



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### SECTION 15: Regulatory information

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

##### Relevant provisions of the European Union (EU)

- Directive 75/324/EEC relating to aerosol dispensers

**Classification of the gas/aerosol** Extremely flammable

##### Labelling

Pressurized container: may burst if heated  
Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking  
Do not pierce or burn, even after use  
Protect from sunlight. Do not expose to temperatures exceeding 50 °C/122 °F

#### 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
ADN	Accord européen relatif au transport international des marchandises dangereuses par voies de navigation intérieures (European Agreement concerning the International Carriage of Dangerous Goods by Inland Waterways)
ADR	Accord relatif au transport international des marchandises dangereuses par route (Agreement concerning the International Carriage of Dangerous Goods by Road)
BCF	Bioconcentration factor
BOD	Biochemical Oxygen Demand
CAS	Chemical Abstracts Service (service that maintains the most comprehensive list of chemical substances)
CLP	Regulation (EC) No 1272/2008 on classification, labelling and packaging of substances and mixtures
CMR	Carcinogenic, Mutagenic or toxic for Reproduction
COD	Chemical oxygen demand
DGR	Dangerous Goods Regulations (see IATA/DGR)
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
EC No	The EC Inventory (EINECS, ELINCS and the NLP-list) is the source for the seven-digit EC number, an identifier of substances commercially available within the EU (European Union)
EINECS	European Inventory of Existing Commercial Chemical Substances
ELINCS	European List of Notified Chemical Substances
EmS	Emergency Schedule
Flam. Gas	Flammable gas
GHS	"Globally Harmonized System of Classification and Labelling of Chemicals" developed by the United Nations
IATA	International Air Transport Association
IATA/DGR	Dangerous Goods Regulations (DGR) for the air transport (IATA)
ICAO	International Civil Aviation Organization
IMDG	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
log KOW	n-Octanol/water
MARPOL	International Convention for the Prevention of Pollution from Ships (abbr. of "Marine Pollutant")

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Abbr.	Descriptions of used abbreviations
NLP	No-Longer Polymer
PBT	Persistent, Bioaccumulative and Toxic
Press. Gas	Gas under pressure
REACH	Registration, Evaluation, Authorisation and Restriction of Chemicals
RID	Règlement concernant le transport International ferroviaire des marchandises Dangereuses (Regulations concerning the International carriage of Dangerous goods by Rail)
UFI	Unique formula identifier
vPvB	Very Persistent and very Bioaccumulative

### Key literature references and sources for data

- Regulation (EC) No. 1907/2006 (REACH), amended by 2015/830/EU
- Regulation (EC) No. 1272/2008 (CLP, EU GHS)

### 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
H220	Extremely flammable gas.
H222	Extremely flammable aerosol.
H229	Pressurised container: May burst if heated.
H280	Contains gas under pressure; may explode if heated.

### Specific end use(s)

Professional use/industrial use

### Disclaimer

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