

CELO Fuel Cell

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

1.1 Product identifier

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

1.2.1 Relevant uses Cartridges for tools

1.2.2 Uses advised against None known.

1.3 Details of the supplier of the safety data sheet

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Technical information SDS

1.4 Emergency telephone number +49 (0) 89 19240
Advisory body

SECTION 2: Hazards identification

2.1 Classification of the substance or mixture

Flam. Gas 1: H220 Extremely flammable gas.
Press. Gas: H280 Contains gas under pressure; may explode if heated.

2.2 Label elements

The product is required to be labelled in accordance with regulation (EC) No 1272/2008 (CLP).

Hazard pictograms



Signal word DANGER

Hazard statements H220 Extremely flammable gas.
H280 Contains gas under pressure; may explode if heated.

Precautionary statements P210 Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.
P377 Leaking gas fire: Do not extinguish, unless leak can be stopped safely.
P410+P403 Protect from sunlight. Store in a well-ventilated place.
P381 Eliminate all ignition sources if safe to do so

2.3 Other hazards

Does not contain any PBT or vPvB substances.

Environmental hazards Further hazards were not determined with the current level of knowledge.

Other hazards

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SECTION 3: Composition / Information on ingredients**Product-type:**

The product is a mixture.

Range [%]	Substance
55 - 70	Propane
	CAS: 115-07-1, EINECS/ELINCS: 204-062-1, EU-INDEX: 601-011-00-9
	GHS/CLP: Flam. Gas 1: H220 - Press. Gas: H280
30 - 45	1-Butane
	CAS: 106-98-9, EINECS/ELINCS: 203-449-2, EU-INDEX: 601-012-00-4
	GHS/CLP: Flam. Gas 1: H220 - Press. Gas: H280

Comment on component parts

Substances of Very High Concern - SVHC: substances are not contained or are below 0.1%.
For full text of H-statements: see SECTION 16.

SECTION 4: First aid measures**4.1 Description of first aid measures****General information**

Change soaked clothing.

Inhalation

Ensure supply of fresh air.
In the event of symptoms seek medical treatment.

Skin contact

No special measures necessary.

Eye contact

Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
If eye irritation persists: Get medical advice/attention.

Ingestion

not applicable

4.2 Most important symptoms and effects, both acute and delayed

Vertigo
Nausea, vomiting.

4.3 Indication of any immediate medical attention and special treatment needed

Treat symptomatically.

SECTION 5: Fire-fighting measures**5.1 Extinguishing media****Suitable extinguishing media**

foam, dry powder, water spray jet, carbon dioxide

Extinguishing media that must not be used

Full water jet

5.2 Special hazards arising from the substance or mixture

risk of formation of toxic pyrolysis products, carbon monoxide (CO), not combusted hydrocarbons
Bursting gas cylinder can be forcibly projected from a fire.

5.3 Advice for firefighters

Use self-contained breathing apparatus.
Cool containers at risk with water spray jet.
Fire residues and contaminated firefighting water must be disposed of in accordance within the local regulations.

SECTION 6: Accidental release measures**6.1 Personal precautions, protective equipment and emergency procedures**

Use personal protective equipment.
Ensure adequate ventilation.
Keep away from all sources of ignition.

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6.2 Environmental precautions

Do not discharge into the drains/surface waters/groundwater.

6.3 Methods and material for containment and cleaning up

Not required under normal conditions.

6.4 Reference to other sections

See SECTION 8

SECTION 7: Handling and storage

7.1 Precautions for safe handling

Use only in well-ventilated areas.
Special instructions for safe handling must be obtained before use.
Keep away from sources of ignition - refrain from smoking.
Vapours can form an explosive mixture with air.
Take precautionary measures against static discharges.
Do not eat, drink or smoke when using this product.
Wash hands before breaks and after work.

7.2 Conditions for safe storage, including any incompatibilities

Depending upon stock quantity relevant regulations to the fire and explosion prevention consider.
Do not store together with food and animal food/diet.
Keep in a cool place. Store in a dry place.
Protect from heat/overheating and from sun.
Recommended storage temperature: 5-25 °C (41-77 °F).

7.3 Class

LGK 2A

7.4 Specific end use(s)

See product use, SECTION 1.2

SECTION 8: Exposure controls / personal protection

8.1 Control parameters

Ingredients with occupational exposure limits to be monitored (GB)

not applicable

8.2 Exposure controls

Additional advice on system design

Ensure adequate ventilation on workstation.
Measurement methods for taking workplace measurements must meet the performance requirements of DIN EN 482. For example, recommendations are given in the IFA's list of hazardous substances.

Eye protection

Safety glasses. (EN 166:2001)

Hand protection

The details concerned are recommendations. Please contact the glove supplier for further information.
0,7 mm; Butyl rubber, >480 min (EN 374-1/-2/-3).

Skin protection

Protective clothing.

Other

Do not inhale gases/vapours/aerosols.

Respiratory protection

Respiratory protection mask in the event of high concentrations.
Short term: filter apparatus, filter A. (DIN EN 14387)

Thermal hazards

No information available.

Delimitation and monitoring of the environmental exposition

Protect the environment by applying appropriate control measures to prevent or limit emissions.

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SECTION 9: Physical and chemical properties**9.1 Information on basic physical and chemical properties**

Form	gas
Color	colourless
Odor	characteristic
Odour threshold	not determined
pH-value	not applicable
pH-value [1%]	not applicable
Boiling point [°C]	- 6,25 (1-Buten)
Flash point [°C]	- 108
Flammability (solid, gas) [°C]	not applicable
Lower explosion limit	1,4 Vol% (Propylen)
Upper explosion limit	10 Vol% (1-Buten)
Oxidising properties	no
Vapour pressure/gas pressure [kPa]	676
Density [g/ml]	0,5541
Bulk density [kg/m ³]	not applicable
Solubility in water	virtually insoluble
Partition coefficient [n-octanol/water]	not applicable
Viscosity	not applicable
Relative vapour density determined in air	> 1,5 (Luft = 1)
Evaporation speed	not applicable
Melting point [°C]	not determined
Autoignition temperature [°C]	385 (1-Buten)
Decomposition temperature [°C]	not determined

9.2 Other information

none

SECTION 10: Stability and reactivity**10.1 Reactivity**

See SECTION 10.3.

10.2 Chemical stability

Stable under recommended storage conditions.

10.3 Possibility of hazardous reactions

Formation of explosive gas/air mixtures.

10.4 Conditions to avoid

Strong heating.

10.5 Incompatible materials

Oxidizing agent

10.6 Hazardous decomposition products

No hazardous decomposition products known.

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SECTION 11: Toxicological information**11.1 Information on toxicological effects****Acute toxicity**

Serious eye damage/irritation	Based on the available information, the classification criteria are not fulfilled.
Skin corrosion/irritation	Based on the available information, the classification criteria are not fulfilled.
Respiratory or skin sensitisation	Based on the available information, the classification criteria are not fulfilled.
Specific target organ toxicity — single exposure	Based on the available information, the classification criteria are not fulfilled.
Specific target organ toxicity — repeated exposure	Based on the available information, the classification criteria are not fulfilled.
Mutagenicity	Based on the available information, the classification criteria are not fulfilled.
Reproduction toxicity	Based on the available information, the classification criteria are not fulfilled.
Carcinogenicity	Based on the available information, the classification criteria are not fulfilled.
Aspiration hazard	Based on the available information, the classification criteria are not fulfilled.
General remarks	

Toxicological data of complete product are not available.

SECTION 12: Ecological information**12.1 Toxicity****12.2 Persistence and degradability**

Behaviour in environment compartments	No information available.
Behaviour in sewage plant	No information available.
Biological degradability	No information available.

12.3 Bioaccumulative potential

No information available.

12.4 Mobility in soil

No information available.

12.5 Results of PBT and vPvB assessment

Based on all available information not to be classified as PBT or vPvB respectively.

12.6 Other adverse effects

Do not discharge product unmonitored into the environment or into the drainage.

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SECTION 13: Disposal considerations

13.1 Waste treatment methods

Waste material must be disposed of in accordance with the Directive on waste 2008/98/EC as well as other national and local regulations. It is not possible to determine a waste code for this product in accordance with the European Waste Catalogue (EWC) since it is only possible to classify it according to how it is used by the customer. The waste code is to be determined within the EU in liaison with the waste-disposal operator.

Product

Dispose of as hazardous waste.

Waste no. (recommended)

160504* gases in pressure containers (including halons) containing dangerous substances

Contaminated packaging

Packaging that cannot be cleaned should be disposed of as for product.

Waste no. (recommended)

150110*
 150104

SECTION 14: Transport information

14.1 UN number

Transport by land according to ADR/RID 3150

Inland navigation (ADN) 3150

Marine transport in accordance with IMDG 3150

Air transport in accordance with IATA 3150

14.2 UN proper shipping name

Transport by land according to ADR/RID Hydrocarbon gas refills for small devices

- Classification Code 6F

- Label 

- Tunnel Restriction Code (D)

Inland navigation (ADN) Hydrocarbon gas refills for small devices

- Classification Code 6F

- Label 

Marine transport in accordance with IMDG Hydrocarbon gas refills for small devices

- EMS F-D, S-U

- Label 

Air transport in accordance with IATA Hydrocarbon gas refills for small devices

- Label 

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14.3 Transport hazard class(es)

Transport by land according to ADR/RID 2

Inland navigation (ADN) 2

Marine transport in accordance with IMDG 2.1

Air transport in accordance with IATA 2.1

14.4 Packing group

Transport by land according to ADR/RID not applicable

Inland navigation (ADN) not applicable

Marine transport in accordance with IMDG not applicable

Air transport in accordance with IATA not applicable

14.5 Environmental hazards

Transport by land according to ADR/RID no

Inland navigation (ADN) no

Marine transport in accordance with IMDG no

Air transport in accordance with IATA no

14.6 Special precautions for user

Relevant information under SECTION 6 to 8.

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

not applicable

SECTION 15: Regulatory information

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

EEC-REGULATIONS 1991/689 (2001/118); 2010/75; 2004/42; 648/2004; 1907/2006 (REACH); 1272/2008; 75/324/EEC (2008/47/EC); (EU) 2015/830; (EU) 2016/131; (EU) 517/2014

TRANSPORT-REGULATIONS DOT-Classification, ADR (2017); IMDG-Code (2017, 38. Amdt.); IATA-DGR (2017).

NATIONAL REGULATIONS (GB): EH40/2005 Workplace exposure limits (Second edition, published December 2011).

- **Observe employment restrictions for people** Observe employment restrictions for mothers-to-be and nursing mothers. Observe employment restrictions for young people.

- **VOC (2010/75/CE)** 100 %

15.2 Chemical safety assessment

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SECTION 16: Other information**16.1 Hazard statements
(SECTION 03)**

H280 Contains gas under pressure; may explode if heated.
 H220 Extremely flammable gas.

16.2 Abbreviations and acronyms:

ADR = Accord européen relatif au transport international des marchandises Dangereuses par Route
 RID = Règlement concernant le transport international ferroviaire de marchandises dangereuses
 ADN = Accord européen relatif au transport international des marchandises dangereuses par voie de navigation intérieure
 ATE = acute toxicity estimate
 CAS = Chemical Abstracts Service
 CLP = Classification, Labelling and Packaging
 DMEL = Derived Minimum Effect Level
 DNEL = Derived No Effect Level
 EC50 = Median effective concentration
 ECB = European Chemicals Bureau
 EEC = European Economic Community
 EINECS = European Inventory of Existing Commercial Chemical Substances
 ELINCS = European List of Notified Chemical Substances
 GHS = Globally Harmonized System of Classification and Labelling of Chemicals
 IATA = International Air Transport Association
 IBC-Code = International Code for the Construction and Equipment of Ships carrying Dangerous Chemicals in Bulk
 IC50 = Inhibition concentration, 50%
 IMDG = International Maritime Code for Dangerous Goods
 IUCLID = International Uniform Chemical Information Database
 LC50 = Lethal concentration, 50%
 LD50 = Median lethal dose
 LC0 = lethal concentration, 0%
 LOAEL = lowest-observed-adverse-effect level
 MARPOL = International Convention for the Prevention of Marine Pollution from Ships
 NOAEL = No Observed Adverse Effect Level
 NOEC = No Observed Effect Concentration
 PBT = Persistent, Bioaccumulative and Toxic substance
 PNEC = Predicted No-Effect Concentration
 REACH = Registration, Evaluation, Authorisation and Restriction of Chemicals
 STP = Sewage Treatment Plant
 TLV@/TWA = Threshold limit value – time-weighted average
 TLV@STEL = Threshold limit value – short-time exposure limit
 VOC = Volatile Organic Compounds
 vPvB = very Persistent and very Bioaccumulative

16.3 Other information**Classification procedure**

Flam. Gas 1: H220 Extremely flammable gas. (Bridging principle "Substantially similar mixtures")
 Press. Gas: H280 Contains gas under pressure; may explode if heated. (Bridging principle "Substantially similar mixtures")

Modified position

none