

Baier + Köppel GmbH + Co. KG

91257 Pegnitz

Date printed 08.06.2018, Revision 08.06.2018

Version 01

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SECTION 1: Identification of the substance/mixture and of the company/undertaking**1.1 Product identifier****Lithium metal in equipments****1.2 Relevant identified uses of the substance or mixture and uses advised against****1.2.1 Relevant uses**

Battery

1.2.2 Uses advised against

None known.

1.3 Details of the supplier of the safety data sheet

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 Beethovenstrasse 14
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1.4 Emergency telephone number

Advisory body +49 (0)89-19240 (24h) (english)

SECTION 2: Hazards identification**2.1 Classification of the substance or mixture [REGULATION (EC) No 1272/2008]**

Flam. Liq. 2: H225 Highly flammable liquid and vapour.
 Water-react. 1: H260 In contact with water releases flammable gases which may ignite spontaneously.
 Skin Corr. 1B: H314 Causes severe skin burns and eye damage.
 Eye Dam. 1: H318 Causes serious eye damage.
 Repr. 1B: H360FD May damage fertility. May damage the unborn child.

2.2 Label elements

This product is an article and therefore it does not require labelling according to EC directives [REACH/CLP].

2.3 Other hazards

Physico-chemical hazards When cell is exposed to an external short-circuit, it will cause heat generation and ignition. The chemicals are contained within a sealed housing. There is only a risk of exposure if the battery is subject to mechanical or electrical misuse.

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

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

The product is an article.

Range [%]	Substance
< 10	1,3-Dioxolan
	CAS: 646-06-0, EINECS/ELINCS: 211-463-5, EU-INDEX: 605-017-00-2
	GHS/CLP: Flam. Liq. 2: H225
4 - 6	lithium
	CAS: 7439-93-2, EINECS/ELINCS: 231-102-5, EU-INDEX: 003-001-00-4
	GHS/CLP: Skin Corr. 1B: H314 - Eye Dam. 1: H318 - Water-react. 1: H260
<5	Propylene carbonate
	CAS: 108-32-7, EINECS/ELINCS: 203-572-1, EU-INDEX: 607-194-00-1
	GHS/CLP: Eye Irrit. 2: H319
<5	1,2-Dimethoxyethane
	CAS: 110-71-4, EINECS/ELINCS: 203-794-9, EU-INDEX: 603-031-00-3
	GHS/CLP: Flam. Liq. 2: H225 - Acute Tox. 4: H332 - Repr. 1B: H360FD

Comment on component parts

SVHC (Candidate List of Substances of Very High Concern for authorisation) \geq 0.1%
CAS 110-71-4 - 1,2-Dimethoxyethane
For full text of H-statements: see SECTION 16.

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

Measures are only valid for damaged cells.

Inhalation

Remove the victim into fresh air and keep him calm.
In the event of symptoms seek medical treatment.

Skin contact

In case of contact with skin wash off immediately with soap and water.
Immediate medical treatment necessary, as untreated burns can result in slow-healing wounds.

Eye contact

Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
Consult a doctor immediately.

Ingestion

Consult a doctor immediately.
Do not induce vomiting.

4.2 Most important symptoms and effects, both acute and delayed

Product is caustic.

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**

All extinguishing media are suitable but method must take into account the surrounding area to minimize dispersion.

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.
Bursting batteries can be forcibly projected from a fire.

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5.3 Advice for firefighters

Use self-contained breathing apparatus.

Fire residues and contaminated firefighting water must be disposed of in accordance with the local regulations.

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

Not required under normal conditions.

6.2 Environmental precautions

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

6.3 Methods and material for containment and cleaning up

Take up mechanically.

Dispose of absorbed material in accordance with the regulations.

6.4 Reference to other sections

See SECTION 8+13

SECTION 7: Handling and storage**7.1 Precautions for safe handling**

The data of the manufacturer concerning the loading and unloading parameters and the recommended temperature ranges are to be considered.

7.2 Conditions for safe storage, including any incompatibilities

Prevent penetration into the ground.

Do not store together with food and animal food/diet.

Store in a dry place.

Protect from heat/overheating.

7.3 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)**

Substance
Graphite
CAS: 7782-42-5, EINECS/ELINCS: 231-955-3
Long-term exposure: 10 mg/m ³ , (inhalable dust)
Carbon black
CAS: 1333-86-4, EINECS/ELINCS: 215-609-9
Long-term exposure: 3,5 mg/m ³
Short-term exposure (15-minute): 7 mg/m ³
Aluminium
CAS: 7429-90-5, EINECS/ELINCS: 231-072-3, EU-INDEX: 013-002-00-1
Long-term exposure: 10 mg/m ³ , inhalable dust (respirable dust: 4 mg/m ³)

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8.2 Exposure controls

Additional advice on system design	Measures apply only to the damaged product. 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	0,7 mm Butyl rubber, >480 min (EN 374-1/-2/-3).
Skin protection	Protective clothing.
Other	Personal protective equipment should be selected specifically for the working place, depending on concentration and quantity handled. The resistance of this equipment to chemicals should be ascertained with the respective supplier. Avoid contact during pregnancy/ while nursing.
Respiratory protection	Not required under normal conditions.
Thermal hazards	none
Delimitation and monitoring of the environmental exposition	Protect the environment by applying appropriate control measures to prevent or limit emissions.

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

Form	Battery
Color	various
Odor	odourless
Odour threshold	not applicable
pH-value	not applicable
pH-value [1%]	not applicable
Boiling point [°C]	> 35
Flash point [°C]	< 23
Flammability (solid, gas) [°C]	not applicable
Lower explosion limit	not applicable
Upper explosion limit	not applicable
Oxidising properties	no
Vapour pressure/gas pressure [kPa]	not applicable
Density [g/ml]	not determined
Bulk density [kg/m³]	not applicable
Solubility in water	not applicable
Partition coefficient [n-octanol/water]	not applicable
Viscosity	not applicable
Relative vapour density determined in air	not applicable
Evaporation speed	not applicable
Melting point [°C]	not determined
Autoignition temperature [°C]	not determined
Decomposition temperature [°C]	not determined

9.2 Other information

none

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

No dangerous reactions known if used as directed.

10.2 Chemical stability

The product is stable under standard conditions.

10.3 Possibility of hazardous reactions

When cell is exposed to an external short-circuit, it will cause heat generation and ignition.
Heating leads to a risk of bursting and of electrolyte fluid escaping.
Avoid mechanical and electrical misuse.

10.4 Conditions to avoid

Heating

10.5 Incompatible materials

No information available.

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**

Product
ATE-mix, inhalativ (mist), > 5 mg/l 4h.
ATE-mix, dermal, > 2000 mg/kg.
ATE-mix, oral, > 2000 mg/kg.
Substance
Propylene carbonate, CAS: 108-32-7
LD50, dermal, Rabbit: >20000 mg/kg (IUCLID).
LD50, oral, Rat: 34920 mg/kg (RTECS).

Serious eye damage/irritation	Product is caustic. Based on the available information, the classification criteria are fulfilled. Toxicological data of complete product are not available. Calculation method
Skin corrosion/irritation	Product is caustic. Based on the available information, the classification criteria are fulfilled. Toxicological data of complete product are not available. Calculation method
Respiratory or skin sensitisation	Does not contain a relevant substance that meets the classification criteria. Based on the available information, the classification criteria are not fulfilled. Toxicological data of complete product are not available.
Specific target organ toxicity — single exposure	Does not contain a relevant substance that meets the classification criteria. Based on the available information, the classification criteria are not fulfilled. Toxicological data of complete product are not available.
Specific target organ toxicity — repeated exposure	Does not contain a relevant substance that meets the classification criteria. Based on the available information, the classification criteria are not fulfilled. Toxicological data of complete product are not available.
Mutagenicity	Does not contain a relevant substance that meets the classification criteria. Based on the available information, the classification criteria are not fulfilled. Toxicological data of complete product are not available.
Reproduction toxicity	May damage fertility. May damage the unborn child. Based on the available information, the classification criteria are fulfilled. Toxicological data of complete product are not available. Calculation method
Carcinogenicity	Does not contain a relevant substance that meets the classification criteria. Based on the available information, the classification criteria are not fulfilled. Toxicological data of complete product are not available.
Aspiration hazard	Does not contain a relevant substance that meets the classification criteria. Based on the available information, the classification criteria are not fulfilled.
General remarks	none

SECTION 12: Ecological information**12.1 Toxicity**

Substance
Propylene carbonate, CAS: 108-32-7
EC50, (48h), Daphnia magna: >1000 mg/l (IUCLID).
IC50, (72h), Desmodemus subspicatus: >900 mg/l (IUCLID).
NOEC, (96h), Leuciscus idus: 2200 mg/l (DIN 38412 IUCLID).

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12.2 Persistence and degradability

Behaviour in environment compartments	No information available.
Behaviour in sewage plant	No information available.
Biological degradability	not determined

12.3 Bioaccumulative potential

Accumulation in organisms is not expected.

12.4 Mobility in soil

Spillages may penetrate the soil causing ground water contamination.

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

None known.

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

For recycling, consult manufacturer.

Waste no. (recommended)

200134

Contaminated packaging

Uncontaminated packaging may be taken for recycling.

Waste no. (recommended)

150102

SECTION 14: Transport information**14.1 UN number**

Transport by land according to ADR/RID 3091

Inland navigation (ADN) 3091

Marine transport in accordance with IMDG 3091

Air transport in accordance with IATA 3091

Lithium metal in equipments

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14.2 UN proper shipping name

Transport by land according to ADR/RID	Lithium Batteries contained in equipment
- Classification Code	M4
- Label	
- ADR LQ	0 kg
- ADR 1.1.3.6 (8.6)	Transport category (tunnel restriction code) 2 (E)

Inland navigation (ADN)	Lithium Batteries contained in equipment
- Classification Code	M4
- Label	

Marine transport in accordance with IMDG	Lithium Metall Batteries contained in equipment
- EMS	F-A, S-I
- Label	
- IMDG LQ	0 kg

Air transport in accordance with IATA	Lithium Metall Batteries contained in equipment
- Label	

14.3 Transport hazard class(es)

Transport by land according to ADR/RID	9
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Inland navigation (ADN)	9
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Marine transport in accordance with IMDG	9
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Air transport in accordance with IATA	9
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14.4 Packing group

Transport by land according to ADR/RID	not applicable
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Inland navigation (ADN)	not applicable
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Marine transport in accordance with IMDG	not applicable
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Air transport in accordance with IATA	not applicable
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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 (2018).

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

- Observe employment restrictions for people none

- VOC (2010/75/CE) <= 15 %

15.2 Chemical safety assessment

not applicable

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

H319 Causes serious eye irritation.

H360FD May damage fertility. May damage the unborn child.

H332 Harmful if inhaled.

H260 In contact with water releases flammable gases which may ignite spontaneously.

H318 Causes serious eye damage.

H314 Causes severe skin burns and eye damage.

H225 Highly flammable liquid and vapour.

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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. Liq. 2: H225 Highly flammable liquid and vapour. (Expert judgement)
 Water-react. 1: H260 In contact with water releases flammable gases which may ignite spontaneously. (Expert judgement)
 Skin Corr. 1B: H314 Causes severe skin burns and eye damage. (Calculation method)
 Eye Dam. 1: H318 Causes serious eye damage. (Expert judgement)
 Repr. 1B: H360FD May damage fertility. May damage the unborn child. (Calculation method)

Modified position

none



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