

Mirka Ltd
66850 Jeppo

Date printed 06.06.2019, Revision 06.06.2019

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

1.1 Product identifier

Mirka Intelligent Battery BPA 10825 10.8V 2.5Ah

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

Company	Mirka Ltd Pensalavägen 210 66850 Jeppo / FINLAND Phone +358 20 760 2111 Fax +358 20 760 2290 Homepage www.mirka.com E-mail sales@mirka.com
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Address enquiries to

Technical information	sales@mirka.com
Safety Data Sheet	sdb@chemiebuero.de

1.4 Emergency telephone number

Company	+358 20 760 2111 (8:00 - 16:00)
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SECTION 2: Hazards identification

2.1 Classification of the substance or mixture [UN GHS Rev.6]

Carc. 1A: H350i May cause cancer by inhalation.
Acute Tox. 4: H302 Harmful if swallowed.
Skin Corr. 1A: H314 Causes severe skin burns and eye damage.
Eye Dam. 1: H318 Causes serious eye damage.
STOT RE 1: H372 Causes damage to organs through prolonged or repeated exposure.
Skin Sens. 1: H317 May cause an allergic skin reaction.
Aquatic Acute 1: H400 Very toxic to aquatic life.
Aquatic Chronic 1: H410 Very toxic to aquatic life with long lasting effects.

2.2 Label elements

This product is an article and therefore it does not require labelling according to UN GHS Rev.6 (CHAPTER 1.3/1.3.2.1.1)

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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. At temperatures over 125 °C risk of bursting and withdrawal of electrolyte liquid exists.
Human health dangers	The contained dangerous materials are not freely available with foreseeable use.
Environmental hazards	Does not contain any PBT or vPvB substances.
Other hazards	Mercury content: Hg < 0.1mg/kg Cadmium content: Cd < 1mg/kg Lead content: Pb < 10mg/kg Further hazards were not determined with the current level of knowledge.

SECTION 3: Composition / Information on ingredients

Product-type:

3.2 The product is a mixture.

Range [%]	Substance
< 30	Cobalt oxide CAS: 1307-96-6, EINECS/ELINCS: 215-154-6, EU-INDEX: 027-002-00-4 GHS/CLP: Acute Tox. 4: H302 - Skin Sens. 1: H317 - Aquatic Chronic 1: H410 - Aquatic Acute 1: H400, M = 10
< 30	Manganese dioxide CAS: 1313-13-9, EINECS/ELINCS: 215-202-6, EU-INDEX: 025-001-003 GHS/CLP: Acute Tox. 4: H302 H332
< 30	Nickel monoxide CAS: 1313-99-1, EINECS/ELINCS: 215-215-7, EU-INDEX: 028-003-00-2 GHS/CLP: Carc. 1A: H350i - Skin Sens. 1: H317 - STOT RE 1: H372 - Aquatic Chronic 4: H413
< 30	Carbon CAS: 7440-44-0, EINECS/ELINCS: 231-153-3
< 20	Lithium hexafluorophosphate CAS: 21324-40-3, EINECS/ELINCS: 244-334-7 GHS/CLP: Acute Tox. 3: H301 - Skin Corr. 1A: H314 - Eye Dam. 1: H318 - STOT RE 1: H372
2 - 10	Aluminium foil CAS: 7429-90-5, EINECS/ELINCS: 231-072-3, EU-INDEX: 013-002-00-1
2 - 10	Copper foil CAS: 7440-50-8, EINECS/ELINCS: 231-159-6
< 10	Polyvinylidene fluoride CAS: 24937-79-9, EINECS/ELINCS: 607-458-6

Comment on component parts	Electrolyte-Main ingredients: Lithium hexafluorophosphate, organic carbonates. The structural design of the cells prevents release of the hazardous media contained therein when the unit is used for its intended purpose. For full text of H-statements: see SECTION 16.
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SECTION 4: First aid measures

4.1 Description of first aid measures

General information	Measures are only valid for damaged cells. Undamaged, closed cells do not represent a danger to the health.
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.
Allergic reactions

4.3 Indication of any immediate medical attention and special treatment needed

Treat symptomatically.
Forward this sheet to the doctor.

SECTION 5: Fire-fighting measures

5.1 Extinguishing media

Suitable extinguishing media	Metal fire-ex powder. Dry powder. Sand.
Extinguishing media that must not be used	Full water jet

5.2 Special hazards arising from the substance or mixture

Danger of electric shock during fire-fighting of batteries.
Bursting batteries can be forcibly projected from a fire.
Hydrogen fluoride (HF).
Carbon monoxide (CO)
Carbon dioxide (CO₂)

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

Not required under normal conditions.

6.2 Environmental precautions

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

6.3 Methods and material for containment and cleaning up

Take up mechanically.
Take up residues with absorbent material (e.g. acid binder).
Dispose of absorbed material in accordance within the regulations.

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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.

Keep away from open flames, hot surfaces and sources of ignition.

Do not pierce or burn, even after use.

7.2 Conditions for safe storage, including any incompatibilities

Prevent penetration into the ground.

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

Do not store with combustible materials.

Keep container tightly closed.

Store in a dry place.

Protect from heat/overheating.

Protect from sun.

Ensure battery terminals are protected during storage.

Protect from atmospheric moisture, water and contamination.

Storage at room temperature (approx. 20°C) at approx. 20-60% of the nominal capacity (OCV approx. 3.6 - 3.9 V/cell).

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
(GHS)

not applicable

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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 (EN 340)
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.
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 10.8 V; 2500 mAh; 54 Wh
Color	various
Odor	odourless
Odour threshold	not applicable
pH-value	not applicable
pH-value [1%]	not applicable
Boiling point [°C]	not applicable
Flash point [°C]	not applicable
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]	No information available.
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]	No information available.
Autoignition temperature [°C]	No information available.
Decomposition temperature [°C]	No information available.

9.2 Other information

none

SECTION 10: Stability and reactivity

10.1 Reactivity

No dangerous reactions known if used as directed.

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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.

Avoid mechanical and electrical misuse.

Heating leads to a risk of bursting and of electrolyte fluid escaping.

10.4 Conditions to avoid

Heat causes increase in pressure and risk of bursting.

Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.

10.5 Incompatible materials

Water

10.6 Hazardous decomposition products

No dangerous reactions known if used as directed.

In the event of fire: See SECTION 5.

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SECTION 11: Toxicological information

11.1 Information on toxicological effects

Acute toxicity

Product
ATE-mix, inhalativ (dust), > 5 mg/l/4h.
ATE-mix, oral, >= 313 mg/kg.
Substance
Cobalt oxide, CAS: 1307-96-6
ATE, oral, 500 mg/kg (category 4).
Nickel monoxide, CAS: 1313-99-1
LD50, oral, Rat: > 5000 mg/kg (IUCLID).
Lithium hexafluorophosphate, CAS: 21324-40-3
LD50, oral, Rat: > 50 - 300 mg/kg (Lit.).
ATE, oral, 100 mg/kg (category 3).
Manganese dioxide, CAS: 1313-13-9
ATE, inhalativ (dust), 1,5 mg/l/4h (category 4).
ATE, oral, 500 mg/kg (category 4).

Serious eye damage/irritation	Risk of serious damage to eyes. Calculation method
Skin corrosion/irritation	Strongly corrosive. Calculation method
Respiratory or skin sensitisation	Sensitizing. Calculation method
Specific target organ toxicity — single exposure	Based on the available information, the classification criteria are not fulfilled.
Specific target organ toxicity — repeated exposure	Causes damage to organs through prolonged or repeated exposure. Calculation method
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	Can cause cancer. Calculation method
Aspiration hazard	Based on the available information, the classification criteria are not fulfilled.
General remarks	The structural design of the cells prevents release of the hazardous media contained therein when the unit is used for its intended purpose.

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SECTION 12: Ecological information

12.1 Toxicity

Substance
Aluminium, CAS: 7429-90-5
LC50, (96h), fish: > 100 mg/l (IUCLID).
NOEC, (72h), <i>Selenastrum capricornutum</i> : > 100 mg/l (IUCLID).
Copper, CAS: 7440-50-8
LC50, (48h), <i>Gambusia affinis</i> : 0,18 mg/L.
Nickel monoxide, CAS: 1313-99-1
LC50, (96h), <i>Brachidanio rerio</i> : > 100 mg/l (IUCLID).
EC50, (72h), <i>Selenastrum capricornutum</i> : > 127,3 mg/l (IUCLID).
EC50, (48h), <i>Daphnia magna</i> : > 100 mg/l (IUCLID).
Lithium hexafluorophosphate, CAS: 21324-40-3
EC50, (3h), Activated sludge: > 1000 mg/l (Lit.).
EC50, (72h), <i>Pseudokirchneriella subcapitata</i> : > 100 mg/l (Lit.).
EC50, (48h), <i>Daphnia magna</i> : > 100 mg/l (Lit.).

12.2 Persistence and degradability

Behaviour in environment compartments	No information available.
Behaviour in sewage plant	No information available.
Biological degradability	The methods for determining the biological degradability are not applicable to inorganic substances.

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

No information available.

12.6 Other adverse effects

None known.

SECTION 13: Disposal considerations

13.1 Waste treatment methods

Waste must be disposed of in accordance with national and local environmental control regulations. Consult your local or regional authorities.

Product For recycling, consult manufacturer.

Contaminated packaging Uncontaminated packaging may be taken for recycling.

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SECTION 14: Transport information

14.1 UN number

Transport by land according to ADR/RID 3480

Inland navigation (ADN) 3480

Marine transport in accordance with IMDG 3480

Air transport in accordance with IATA 3480

14.2 UN proper shipping name

Transport by land according to ADR/RID Lithium ion batteries (No dangerous goods, according ADR special regulations 188)

- Classification Code M4

- ADR LQ 0 kg

- ADR 1.1.3.6 (8.6) Transport category (tunnel restriction code) 2 (E)

Inland navigation (ADN) Lithium ion batteries (No dangerous goods, according ADR special regulations 188)

- Classification Code M4

Marine transport in accordance with IMDG Lithium ion batteries (No dangerous goods, according IMDG Special regulations 188)

- EMS F-A, S-I

- IMDG LQ 0 I

Air transport in accordance with IATA Lithium ion batteries

- Label



14.3 Transport hazard class(es)

Transport by land according to ADR/RID 9

Inland navigation (ADN) 9

Marine transport in accordance with IMDG 9

Air transport in accordance with IATA 9

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

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14.5 Environmental hazards

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

14.6 Special precautions for user

Relevant information under SECTION 6 to 8.

We further certify that the enclosed products have been tested and fulfilled the requirements and conditions in accordance with UN Recommendations (T1 – T8) on the Transport of Dangerous Goods Model Regulations and the Manual of Testes and Criteria (38.3 Lithium Battery) that can be treated as "Non-Dangerous Goods".

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 (2016/2037/EC); (EU) 2015/830; (EU) 2016/131; (EU) 517/2014

TRANSPORT-REGULATIONS DOT-Classification, ADR (2019); IMDG-Code (2019, 39. Amdt.); IATA-DGR (2019)

NATIONAL REGULATIONS (GHS):

- Observe employment restrictions for people none

- VOC (2010/75/CE) not applicable

15.2 Chemical safety assessment

not applicable

SECTION 16: Other information

16.1 Hazard statements (SECTION 03)

H318 Causes serious eye damage.
H314 Causes severe skin burns and eye damage.
H301 Toxic if swallowed.
H400 Very toxic to aquatic life.
H410 Very toxic to aquatic life with long lasting effects.
H302 Harmful if swallowed.
H302+H332 Harmful if swallowed or if inhaled.
H413 May cause long lasting harmful effects to aquatic life.
H372 Causes damage to organs through prolonged or repeated exposure.
H317 May cause an allergic skin reaction.
H350i May cause cancer by inhalation.

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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

Carc. 1A: H350i May cause cancer by inhalation. (Calculation method)
 Acute Tox. 4: H302 Harmful if swallowed. (Calculation method)
 Skin Corr. 1A: H314 Causes severe skin burns and eye damage. (Calculation method)
 Eye Dam. 1: H318 Causes serious eye damage. (Calculation method)
 STOT RE 1: H372 Causes damage to organs through prolonged or repeated exposure. (Calculation method)
 Skin Sens. 1: H317 May cause an allergic skin reaction. (Calculation method)
 Aquatic Acute 1: H400 Very toxic to aquatic life. (Calculation method)
 Aquatic Chronic 1: H410 Very toxic to aquatic life with long lasting effects. (Calculation method)

Modified position

none



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