

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

1.1 Product identifier

18V GRANIT BLACK EDITION Lithium-Ionen Akku
Article number: 7306070

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 material data sheet

Company Wilhelm Fricke SE
Zum Kreuzkamp 7
27404 Heeslingen / GERMANY
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Homepage www.fricke.de
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Safety Data Sheet sdb@chemiebuero.de

1.4 Emergency telephone number

Company +49-4281-712-0 Mo-Fr 7:30-16:30

SECTION 2: Hazards identification

2.1 Classification of the substance or mixture [REGULATION (GB) CLP]

Acute Tox. 3: H301 Toxic if swallowed.
Skin Corr. 1A: H314 Causes severe skin burns and eye damage.
Skin Sens. 1: H317 May cause an allergic skin reaction.
Eye Dam. 1: H318 Causes serious eye damage.
Resp. Sens. 1B: H334 May cause allergy or asthma symptoms or breathing difficulties if inhaled.
Carc. 1A: H350i May cause cancer by inhalation.
STOT RE 1: H372 Causes damage to organs through prolonged or repeated exposure.
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 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.

Human health dangers Contains no ingredients with endocrine-disrupting properties.

Environmental hazards Does not contain any PBT or vPvB substances.

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

SECTION 3: Composition / Information on ingredients

3.1 Substances not applicable

3.2 Mixtures

The product is an article.

Range [%]	Substance
< 20	Lithium hexafluorophosphate
	CAS: 21324-40-3
	GHS/CLP: Acute Tox. 3: H301 - Skin Corr. 1A: H314 - Eye Dam. 1: H318 - STOT RE 1: H372
< 30	Manganese dioxide
	CAS: 1313-13-9
	GHS/CLP: Acute Tox. 4: H302 H332 - STOT RE 2: H373
< 30	Nickel monoxide
	CAS: 1313-99-1
	GHS/CLP: Carc. 1A: H350i - Skin Sens. 1: H317 - STOT RE 1: H372 - Aquatic Chronic 4: H413
< 30	Cobalt oxide
	CAS: 1307-96-6
	GHS/CLP: Acute Tox. 3: H301 - Skin Sens. 1: H317 - Resp. Sens. 1B: H334 - Carc. 2: H351 - Aquatic Acute 1: H400 - Aquatic Chronic 1: H410, M-Factor (acute): 10, M-Factor (chronic): 10
> 1	Ethylene carbonate
	CAS: 96-49-1
	GHS/CLP: Eye Irrit. 2: H319 - Acute Tox. 4: H302 - STOT RE 2: H373
> 1	Dimethyl carbonate
	CAS: 616-38-6
	GHS/CLP: Flam. Liq. 2: H225
> 1	Ethyl methyl carbonate
	CAS: 623-53-0
	GHS/CLP: Flam. Liq. 2: H225

Comment on component parts

The structural design of the cells prevents release of the hazardous media contained therein when the unit is used for its intended purpose.
 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

Measures are only needed 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.

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.

Clean skin thoroughly after work, apply skin cream.

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
Manganese dioxide
CAS: 1313-13-9
Long-term exposure: 0,2 mg/m ³ , inhalable fraction, 0,05 respirable fraction (as Mn)
Lithium hexafluorophosphate
CAS: 21324-40-3
Long-term exposure: 2,5 mg/m ³ , Fluoride (inorganic as F)
Nickel monoxide
CAS: 1313-99-1
Long-term exposure: 0,5 mg/m ³ , as Ni, Carc, Sk
Aluminium
CAS: 7429-90-5
Long-term exposure: 10 mg/m ³ , inhalable dust (respirable dust: 4 mg/m ³)
Copper
CAS: 7440-50-8
Long-term exposure: 1 mg/m ³ , dusts and mists (as Cu), 0,2mg/m ³ * (fume)
Short-term exposure (15-minute): 2 mg/m ³
Carbon
CAS: 7440-44-0
Long-term exposure: 10 mg/m ³ , inhalable dust; respirable: 4 mg/m ³

DNEL

Substance
Lithium hexafluorophosphate, CAS: 21324-40-3
Industrial, dermal, Long-term - systemic effects, 0,133 mg/kg bw/day
Industrial, inhalative, Long-term - systemic effects, 0,931 mg/m ³

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. Do not breathe vapour/spray.
Respiratory protection	In the event of occupational exposure limits being exceeded or of inadequate ventilation: wear appropriate respiratory protection. Short term: combination filter A-P3. (DIN EN 14387)
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

Physical state	Battery
Color	silver-grey
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/cm ³]	not determined
Relative density	not determined
Bulk density [kg/m ³]	not applicable
Solubility in water	not applicable
Solubility other solvents	not applicable
Partition coefficient [n-octanol/water]	not applicable
Kinematic viscosity	not applicable
Relative vapour density	not applicable
Evaporation speed	not applicable
Melting point [°C]	not determined
Auto-ignition temperature	not determined
Decomposition temperature [°C]	not determined
Particle characteristics	not applicable

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.

SECTION 11: Toxicological information

11.1 Information on toxicological effects

Acute oral toxicity

Product
ATE-mix, oral, > 50 - < 300 mg/kg
Substance
Dimethyl carbonate, CAS: 616-38-6
LD50, oral, Rat, > 5000 mg/kg (Lit.)
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)
Ethylene carbonate, CAS: 96-49-1
LD50, oral, Rat, 10000 mg/kg (Lit.)

Acute dermal toxicity

Product
ATE-mix, dermal, > 2000 mg/kg
Substance
Dimethyl carbonate, CAS: 616-38-6
LD50, dermal, Rabbit, > 5000 mg/kg (Lit.)
Ethylene carbonate, CAS: 96-49-1
LD50, dermal, Rabbit, > 3000 mg/kg (Lit.)

Acute inhalational toxicity

Product
ATE-mix, inhalation (vapour), > 20 mg/L 4h
Substance
Dimethyl carbonate, CAS: 616-38-6
LC50, inhalative, Rat, > 140 mg/l (Lit.)

Serious eye damage/irritation

Strongly corrosive.
Based on the available information, the classification criteria are fulfilled.
Toxicological data of complete product are not available.
Calculation method

Substance
Lithium hexafluorophosphate, CAS: 21324-40-3
IVIS, Eggs, 16 (20 sek.)

Skin corrosion/irritation

Strongly corrosive.
Based on the available information, the classification criteria are fulfilled.
Toxicological data of complete product are not available.
Calculation method

Substance
Lithium hexafluorophosphate, CAS: 21324-40-3

Mean Tissue Viability, dermal, Human, 6 %

Respiratory or skin sensitisation	May cause an allergic skin reaction. May cause allergy or asthma symptoms or breathing difficulties if inhaled. Based on the available information, the classification criteria are fulfilled. Toxicological data of complete product are not available. Calculation method
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	Causes damage to organs through prolonged or repeated exposure. Based on the available information, the classification criteria are fulfilled. Toxicological data of complete product are not available. Calculation method

Substance
Lithium hexafluorophosphate, CAS: 21324-40-3
NOAEL, oral, Human, 0,133 mg/kg bw/day
NOAEC, inhalative, Human, 2 mg/m ³

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	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.
Carcinogenicity	Suspected of causing cancer. Based on the available information, the classification criteria are fulfilled. Toxicological data of complete product are not available. Calculation method
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
Dimethyl carbonate, CAS: 616-38-6
LC50, (96h), Leuciscus idus, 1000 mg/l (Lit.)
Nickel monoxide, CAS: 1313-99-1
LC50, (96h), Brachidanio rerio, > 100 mg/l (IUCLID)
EC50, (72h), Selenastrum capricornutum, > 127,3 mg/l (IUCLID)
EC50, (48h), Daphnia magna, > 100 mg/l (IUCLID)
Lithium hexafluorophosphate, CAS: 21324-40-3
EC50, (3h), Activated sludge, > 1000 mg/l (Lit.)
EC50, (72h), Pseudokirchneriella subcapitata, > 100 mg/l (Lit.)
EC50, (48h), Daphnia magna, > 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	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 Endocrine disrupting properties

Contains no ingredients with endocrine-disrupting properties.

12.7 Other adverse effects

None known.

SECTION 13: Disposal considerations

13.1 Waste treatment methods

Waste material must be disposed of in accordance with national regulations.

Product

For recycling, consult manufacturer.

Contaminated packaging

Uncontaminated packaging may be taken for recycling.

SECTION 14: Transport information

14.1 UN number or ID 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
- 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 ion batteries
- Classification Code M4
- Label 

Marine transport in accordance with IMDG Lithium ion batteries
- EMS F-A, S-I
- Label 
- 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

14.5 Environmental hazards

Transport by land according to ADR/RID yes

Inland navigation (ADN) yes

Marine transport in accordance with IMDG MARINE POLLUTANT

Air transport in accordance with IATA yes

14.6 Special precautions for user

Relevant information under SECTION 6 to 8.

14.7 Maritime transport in bulk according to IMO instruments

not applicable

SECTION 15: Regulatory information

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

TRANSPORT-REGULATIONS ADR (2021); IMDG-Code (2021, 40. Amdt.); IATA-DGR (2021)

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

- 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 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
EL50 = Median effective loading
ELINCS = European List of Notified Chemical Substances
EmS = Emergency Schedules
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
IVIS = In vitro irritation score
LC50 = Lethal concentration, 50%
LD50 = Median lethal dose
LC0 = lethal concentration, 0%
LOAEL = lowest-observed-adverse-effect level
LL50 = Median lethal loading
LQ = Limited Quantities
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

16.2 Other information

Classification procedure

Acute Tox. 3: H301 Toxic if swallowed. (Calculation method)
Skin Corr. 1A: H314 Causes severe skin burns and eye damage. (Calculation method)
Skin Sens. 1: H317 May cause an allergic skin reaction. (Calculation method)
Eye Dam. 1: H318 Causes serious eye damage. (Calculation method)
Resp. Sens. 1B: H334 May cause allergy or asthma symptoms or breathing difficulties if inhaled. (Calculation method)
Carc. 1A: H350i May cause cancer by inhalation. (Calculation method)
STOT RE 1: H372 Causes damage to organs through prolonged or repeated exposure. (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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