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

1.1. Product identifier

LFP3215.KMILK

Further trade names

Type: 3,2 V; 1500 mAh; 4,8 Wh

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

Use of the substance/mixture

batteries and accumulators

1.3. Details of the supplier of the safety data sheet

Company name:	RP-Technik GmbH	
Street:	Hermann-Staudinger-Str. 10-16	
Place:	D-63110 Rodgau	
Telephone:	+49 (6106) 660 28 - 0	Telefax: +49 (6106) 660 28 - 40
E-mail:	info@rp-group.com	
Contact person:	Francisco Goerke	Telephone: +49 (6106) 660 28 - 0
E-mail:	product@rp-group.com	

1.4. Emergency telephone number:

+49 (6106) 660 28 - 0 (24 h.)

Further Information

This battery pack is an article according to Regulation (EC) No. 1907/2006 (REACH), Annex II, as amended by Regulation (EU) No. 453/2010, and is not subject to the REACH regulation. The information contained in this safety data sheet contains valuable and critical information for the safe and proper use of the product. This SDS should be kept and made available to employees and other users of the product.

SECTION 2: Hazards identification

2.1. Classification of the substance or mixture

Regulation (EC) No 1272/2008

Acute Tox. 4; H302
Skin Corr. 1A; H314
Eye Dam. 1; H318
Skin Sens. 1; H317
Carc. 2; H351
STOT RE 1; H372
STOT RE 2; H373

Full text of hazard statements: see SECTION 16.

2.2. Label elements

Additional advice on labelling

Labelling according to Regulation (EC) No. 1272/2008 [CLP]: not applicable / not relevant
The product is: article (batteries and accumulators)

2.3. Other hazards

The substances in the mixture do not meet the PBT/vPvB criteria according to REACH, annex XIII.
Risk of explosion by shock, friction, fire or other sources of ignition. (Formation of: Gases/vapours, toxic) Do not open container by force. To avoid risks to man and the environment, comply with the instructions for use.

SECTION 3: Composition/information on ingredients

3.2. Mixtures

Chemical characterization

The product is: article (batteries and accumulators)

Relevant ingredients

CAS No	Chemical name			Quantity
	EC No	Index No	REACH No	
	Classification (Regulation (EC) No 1272/2008)			
21324-40-3	Lithium hexafluorophosphate(1-)			15 - 22 %
	244-334-7			
	Acute Tox. 3, Skin Corr. 1A, Eye Dam. 1, STOT RE 1; H301 H314 H318 H372			
7440-50-8	Copper			10 - 15 %
	231-159-6			
	Aquatic Acute 1, Aquatic Chronic 3; H400 H412			
7440-02-0	nickel			0,5 - 1 %
	231-111-4	028-002-00-7		
	Carc. 2, Skin Sens. 1, STOT RE 1; H351 H317 H372			

Full text of H and EUH statements: see section 16.

Specific Conc. Limits, M-factors and ATE

CAS No	EC No	Chemical name	Quantity
	Specific Conc. Limits, M-factors and ATE		
21324-40-3	244-334-7	Lithium hexafluorophosphate(1-)	15 - 22 %
	oral: ATE = 100 mg/kg		

SECTION 4: First aid measures

4.1. Description of first aid measures

General information

When in doubt or if symptoms are observed, get medical advice. The following notes refer to direct contact with the contents of the battery or the accumulator.

After inhalation

Provide fresh air. If breathing is irregular or stopped, administer artificial respiration. Get medical advice/attention.

After contact with skin

Wash with plenty of water/soap. Take off contaminated clothing and wash it before reuse. Medical treatment necessary.

After contact with eyes

In case of contact with eyes flush immediately with plenty of flowing water for 10 to 15 minutes holding eyelids apart and consult an ophthalmologist. Remove contact lenses, if present and easy to do. Continue rinsing.

After ingestion

Rinse mouth immediately and drink plenty of water. Induce vomiting when the affected person is not unconscious. Get immediate medical advice/attention.

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

No information available.

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

Treat symptomatically.

SECTION 5: Firefighting measures

5.1. Extinguishing media

Suitable extinguishing media

Carbon dioxide (CO_2), Water spray jet

Co-ordinate fire-fighting measures to the fire surroundings.

5.2. Special hazards arising from the substance or mixture

Danger of bursting container. (Electrolyte: Highly flammable)

In case of fire may be liberated: Carbon monoxide, Carbon dioxide (CO_2), Metal oxide smoke, toxic corrosive.

Pyrolysis products, toxic, containing fluorine.

5.3. Advice for firefighters

In case of fire: Wear self-contained breathing apparatus. Full protection suit.

Additional information

Suppress gases/vapours/mists with water spray jet. Use water spray jet to protect personnel and to cool endangered containers. Collect contaminated fire extinguishing water separately. Do not allow entering drains or surface water.

SECTION 6: Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

General advice

Do not breathe gas/fumes/vapour/spray. Avoid contact with skin, eyes and clothes. Remove persons to safety.

For non-emergency personnel

Provide adequate ventilation. Remove all sources of ignition. Use personal protection equipment.

For emergency responders

Wear personal protection equipment (refer to section 8).

6.2. Environmental precautions

Avoid release to the environment.

6.3. Methods and material for containment and cleaning up

For containment

Stop leak if safe to do so.

For cleaning up

Take up mechanically. Treat the recovered material as prescribed in the section on waste disposal.
batteries and accumulators: Risk of explosion by shock, friction, fire or other sources of ignition.
Electrolyte:
Absorb with liquid-binding material (sand, diatomaceous earth, acid- or universal binding agents). Treat the recovered material as prescribed in the section on waste disposal.

Other information

Use non-sparking tools.

6.4. Reference to other sections

Safe handling: see section 7
Personal protection equipment: see section 8
Disposal: see section 13

SECTION 7: Handling and storage

7.1. Precautions for safe handling

Advice on safe handling

Handle with care - avoid bumps, friction and impact. Do not open container by force. Do not breathe gas/fumes/vapour/spray. Avoid contact with skin, eyes and clothes.

Advice on protection against fire and explosion

Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking. Take precautionary measures against static discharges.

Advice on general occupational hygiene

Take off contaminated clothing and wash it before reuse. Wash hands before breaks and after work. When using do not eat, drink, smoke, sniff.

Further information on handling

To avoid risks to human health and the environment, comply with the instructions for use.

7.2. Conditions for safe storage, including any incompatibilities

Requirements for storage rooms and vessels

Store in a cool dry place. Provide adequate ventilation as well as local exhaustion at critical locations. Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.

Hints on joint storage

Do not store together with: metals (including their alloys), Acid, Alkali (lye), halogenated hydrocarbons, Oxidising agent, strong.

Further information on storage conditions

Keep away from heat. (Temperature > 70 °C) Protect from direct sunlight. Protect from moisture.

7.3. Specific end use(s)

batteries and accumulators

SECTION 8: Exposure controls/personal protection

8.1. Control parameters

Occupational exposure limits

CAS No	Substance	ppm	mg/m³	fib/cm³	Category	Origin
7429-90-5	Aluminium metal (Respirable Fraction)	-	1		TWA (8 h)	
7440-50-8	Copper, fume	-	0.2		TWA (8 h)	
-	Fluorides, inorganic	-	2.5		TWA (8 h)	
7782-42-5	Graphite (all forms except fibres) (Respirable Fraction)	-	2		TWA (8 h)	
-	Iron salts (as Fe)	-	1		TWA (8 h)	
		-	2		STEL (15 min)	
7440-02-0	Nickel	-	0.5		TWA (8 h)	

Biological limit values

CAS No	Substance	Parameter	Value	Test material	Sampling time
7440-02-0	Nickel	Ni	3 µg/L	Urine	After several consecutive working shifts

8.2. Exposure controls

Appropriate engineering controls

Provide adequate ventilation as well as local exhaustion at critical locations.

Individual protection measures, such as personal protective equipment

Eye/face protection

IF exposed: (Electrolyte): Wear eye/face protection.

Hand protection

IF exposed: (Electrolyte): Wear suitable gloves. (EN ISO 374)
When handling with chemical substances, protective gloves must be worn with the CE-label including the four control digits. The quality of the protective gloves resistant to chemicals must be chosen as a function of the specific working place concentration and quantity of hazardous substances. 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.

Skin protection

Wear suitable protective clothing.

Respiratory protection

IF exposed: (Electrolyte): In case of inadequate ventilation wear respiratory protection.

Thermal hazards

Flame-retardant protective clothing. Wear anti-static footwear and clothing

Environmental exposure controls

Avoid release to the environment.

SECTION 9: Physical and chemical properties

9.1. Information on basic physical and chemical properties

Physical state:	solid
Colour:	No information available.
Odour:	odourless
Odour threshold:	not applicable
Melting point/freezing point:	not determined
Boiling point or initial boiling point and boiling range:	not determined
Flammability:	Electrolyte: Highly flammable
Lower explosion limits:	not determined
Upper explosion limits:	not determined
Flash point:	not applicable
Auto-ignition temperature:	not determined
Decomposition temperature:	not determined
pH-Value:	not applicable
Viscosity / kinematic:	not applicable
Water solubility:	practically insoluble

Solubility in other solvents

not determined

Partition coefficient n-octanol/water:	not determined
Vapour pressure:	not determined
Density:	not determined
Relative vapour density:	not determined
Particle characteristics:	not determined

9.2. Other information

No information available.

SECTION 10: Stability and reactivity

10.1. Reactivity

No hazardous reaction when handled and stored according to provisions.

10.2. Chemical stability

The product is stable under storage at normal ambient temperatures.

10.3. Possibility of hazardous reactions

Heat / In case of fire: Danger of bursting container.

10.4. Conditions to avoid

Handle with care - avoid bumps, friction and impact. Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking. Protect from direct sunlight. Protect from moisture.
Heat (Temperature > 70 °C)

10.5. Incompatible materials

metals (including their alloys), Acid, Alkali (lye), halogenated hydrocarbons, Oxidising agent, strong.

10.6. Hazardous decomposition products

In case of fire may be liberated: Carbon monoxide, Carbon dioxide (CO_2), Metal oxide smoke, toxic corrosive.
Pyrolysis products, toxic, containing fluorine.

SECTION 11: Toxicological information

11.1. Information on hazard classes as defined in Regulation (EC) No 1272/2008

Acute toxicity

Harmful if swallowed.
Electrolyte.

ATEmix calculated

ATE (oral) 454,5 mg/kg; ATE (dermal) > 2000 mg/kg; ATE (inhalation vapour) > 20 mg/l; ATE (inhalation dust/mist) > 5 mg/l

CAS No	Chemical name				
	Exposure route	Dose	Species	Source	Method
21324-40-3	Lithium hexafluorophosphate(1-)				
	oral	ATE 100 mg/kg			

Irritation and corrosivity

Causes severe skin burns and eye damage.
Causes serious eye damage.
Electrolyte

Sensitising effects

May cause an allergic skin reaction. (nickel)

Carcinogenic/mutagenic/toxic effects for reproduction

Suspected of causing cancer. (nickel)
Germ cell mutagenicity: Based on available data, the classification criteria are not met.
Reproductive toxicity: Based on available data, the classification criteria are not met.

STOT-single exposure

Based on available data, the classification criteria are not met.

STOT-repeated exposure

Causes damage to organs through prolonged or repeated exposure. (Lithium hexafluorophosphate(1-))
May cause damage to organs through prolonged or repeated exposure. (nickel)
Electrolyte.

Aspiration hazard

Based on available data, the classification criteria are not met.

Information on likely routes of exposure

Skin contact
Electrolyte: oral, Skin contact, Eye contact, Inhalation.

11.2. Information on other hazards

Endocrine disrupting properties

This product does not contain a substance that has endocrine disrupting properties with respect to humans as no components meets the criteria.

SECTION 12: Ecological information

12.1. Toxicity

Based on available data, the classification criteria are not met.
The product is not: Ecotoxic.

12.2. Persistence and degradability

The product has not been tested.

12.3. Bioaccumulative potential

The product has not been tested.

12.4. Mobility in soil

The product has not been tested.

12.5. Results of PBT and vPvB assessment

The substances in the mixture do not meet the PBT/vPvB criteria according to REACH, annex XIII.

12.6. Endocrine disrupting properties

This product does not contain a substance that has endocrine disrupting properties with respect to non-target organisms as no components meets the criteria.

12.7. Other adverse effects

No information available.

Further information

Do not allow to enter into surface water or drains. Do not allow to enter into soil/subsoil.

SECTION 13: Disposal considerations

13.1. Waste treatment methods

Disposal recommendations

Do not allow to enter into surface water or drains. Do not allow to enter into soil/subsoil. Dispose of waste according to applicable legislation.

Do not pierce or burn, even after use.

Contaminated packaging

Dispose of waste according to applicable legislation.

SECTION 14: Transport information

Land transport (ADR/RID)

14.1. UN number or ID number:	UN 3481
14.2. UN proper shipping name:	LITHIUM ION BATTERIES CONTAINED IN EQUIPMENT
14.3. Transport hazard class(es):	9
14.4. Packing group:	-
Hazard label:	9A

Classification code:	M4
Special Provisions:	188 230 310 348 360 376 377 387 390 670
Limited quantity:	0
Excepted quantity:	E0
Transport category:	2
Tunnel restriction code:	E

Inland waterways transport (ADN)

14.1. UN number or ID number:	UN 3481
14.2. UN proper shipping name:	LITHIUM ION BATTERIES CONTAINED IN EQUIPMENT
14.3. Transport hazard class(es):	9
14.4. Packing group:	-
Hazard label:	9A

Classification code:	M4
Special Provisions:	188 230 310 348 360 376 377 387 390 670
Limited quantity:	0
Excepted quantity:	E0

Marine transport (IMDG)

14.1. UN number or ID number:	UN 3481
14.2. UN proper shipping name:	LITHIUM ION BATTERIES CONTAINED IN EQUIPMENT
14.3. Transport hazard class(es):	9
14.4. Packing group:	-
Hazard label:	9A

Special Provisions:	188 230 310 348 360 376 377 384 387 390
Limited quantity:	0
Excepted quantity:	E0
EmS:	F-A, S-I

Air transport (ICAO-TI/IATA-DGR)

14.1. UN number or ID number:	UN 3481
14.2. UN proper shipping name:	LITHIUM ION BATTERIES CONTAINED IN EQUIPMENT
14.3. Transport hazard class(es):	9
14.4. Packing group:	-
Hazard label:	9A

Special Provisions:	A48 A88 A99 A154 A164 A181 A185 A213 A22
Limited quantity Passenger:	Forbidden
Passenger LQ:	Forbidden
Excepted quantity:	E0
IATA-packing instructions - Passenger:	967
IATA-max. quantity - Passenger:	5 kg
IATA-packing instructions - Cargo:	967
IATA-max. quantity - Cargo:	35 kg

14.5. Environmental hazards

ENVIRONMENTALLY HAZARDOUS: No

14.6. Special precautions for user

Protect against: Heat, Condensation, Humidity.
Handle with care - avoid bumps, friction and impact.

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

EU regulatory information

Restrictions on use (REACH, annex XVII):

Entry 27, Entry 40, Entry 75

Information according to Directive 2012/18/EU (SEVESO III): Not subject to 2012/18/EU (SEVESO III)

Marketing and use of explosives precursors (Regulation (EU) 2019/1148):

This product is regulated by Regulation (EU) 2019/1148: all suspicious transactions, and significant disappearances and thefts should be reported to the relevant national contact point.

Additional information

There is no requirement for the product to be specially labelled according to EC directives or the corresponding national laws.

National regulatory information

Water hazard class (D): 2 - obviously hazardous to water

Additional information

Observe in addition any national regulations!

15.2. Chemical safety assessment

Chemical safety assessments for substances in this mixture were not carried out.

SECTION 16: Other information

Abbreviations and acronyms

Water-react: Substance and mixture which, in contact with water, emits flammable gas
Flam. Sol: Flammable solid
Acute Tox: Acute toxicity
Skin Corr: Skin corrosion
Eye Dam: Eye damage
Skin Sens: Skin sensitisation
Carc: Carcinogenicity
STOT RE: Specific target organ toxicity - repeated exposure
Aquatic Acute: Acute aquatic hazard
Aquatic Chronic: Chronic aquatic hazard
CLP: Classification, labelling and Packaging
REACH: Registration, Evaluation and Authorization of Chemicals
GHS: Globally Harmonised System of Classification, Labelling and Packaging of Chemicals
UN: United Nations
CAS: Chemical Abstracts Service
M-Factor: Multiplication Factor
DNEL: Derived No Effect Level
DMEL: Derived Minimal Effect Level
PNEC: Predicted No Effect Concentration
ATE: Acute toxicity estimate
LC50: Lethal concentration, 50%
LD50: Lethal dose, 50%
LL50: Lethal loading, 50%
EL50: Effect loading, 50%
EC50: Effective Concentration 50%
ErC50: Effective Concentration 50%, growth rate
NOEC: No Observed Effect Concentration
BCF: Bio-concentration factor
PBT: persistent, bioaccumulative, toxic
vPvB: very persistent, very bioaccumulative
ADR: Accord européen sur le transport des marchandises dangereuses par Route
(European Agreement concerning the International Carriage of Dangerous Goods by Road)
RID: Regulations concerning the international carriage of dangerous goods by rail
ADN: European Agreement concerning the International Carriage of Dangerous Goods by Inland Waterways
(Accord européen relatif au transport international des marchandises dangereuses par voies de navigation intérieures)
IMDG: International Maritime Code for Dangerous Goods
EmS: Emergency Schedules
MFAG: Medical First Aid Guide
IATA: International Air Transport Association
ICAO: International Civil Aviation Organization
TI: Technical Instructions
DGR: Dangerous Goods Regulations
MARPOL: International Convention for the Prevention of Marine Pollution from Ships
IBC: Intermediate Bulk Container
VOC: Volatile Organic Compounds
EG or EC: European Community
IE: Industrial Emissions
SVHC: Substance of Very High Concern

Key literature references and sources for data

For abbreviations and acronyms, see: ECHA Guidance on information requirements and chemical safety assessment, chapter R.20 (Table of terms and abbreviations). (v.1.2, 2013)

Classification for mixtures and used evaluation method according to Regulation (EC) No 1272/2008 [CLP]

Classification	Classification procedure
Acute Tox. 4; H302	Calculation method
Skin Corr. 1A; H314	Calculation method
Eye Dam. 1; H318	Calculation method
Skin Sens. 1; H317	Calculation method
Carc. 2; H351	Calculation method
STOT RE 1; H372	Calculation method
STOT RE 2; H373	Calculation method

Relevant H and EUH statements (number and full text)

H301	Toxic if swallowed.
H302	Harmful if swallowed.
H314	Causes severe skin burns and eye damage.
H317	May cause an allergic skin reaction.
H318	Causes serious eye damage.
H351	Suspected of causing cancer.
H372	Causes damage to organs through prolonged or repeated exposure.
H373	May cause damage to organs through prolonged or repeated exposure.
H400	Very toxic to aquatic life.
H412	Harmful to aquatic life with long lasting effects.

Further Information

The information is based on the present level of our knowledge. It does not, however, give assurance of product properties and establishes no contract legal rights. The receiver of our product is singularly responsible for adhering to existing laws and regulations.

(The data for the relevant ingredients were taken respectively from the last version of the sub-contractor's safety data sheet.)