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

1.1. Product identifier

LFP19200

Further trade names

Type: 19.2 V; 19800 mAh; 380.16 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	+49 (6106) 660 28 - 40
E-mail:	info@rp-group.com	
Contact person:	Francisco Goerke	
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

Not classified as a hazardous article under normal intact conditions
Class 9 Miscellaneous dangerous goods (transport classification)
If internal contents are released: Flam. Liq. 2; H225
If internal contents are released: Skin Corr. 1A; H314
If internal contents are released: Eye Dam. 1; H318
If internal contents are released: STOT RE 1; H372
If internal contents are released: Acute Tox. 2; H300

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
15365-14-7	Lithium Iron Phosphate (LiFePO4)	32 %
—	—	—
7440-44-0	Carbon, as Graphite	14 %
231-153-3	—	—
7429-90-5	Aluminium	4.5 %
231-072-3	—	—
7440-50-8	Copper	10 %
231-159-6	—	—
7439-89-6	Iron	17 %
231-096-4	—	—
96-49-1	Ethylene carbonate	3 %
202-510-0	—	—
—	Repr. 2; H361	—
108-32-7	Propylene carbonate	1 %
203-572-1	—	—
141-78-6	Ethyl acetate	6 %
205-500-4	607-022-00-5	—
—	Flam. Liq. 2, Eye Irrit. 2, STOT SE 3; H225 H319 H336	—
623-53-0	Ethyl methyl carbonate	3 %
210-781-3	—	—
—	Flam. Liq. 3; H226	—
21324-40-3	Lithium hexafluorophosphate	2 %
244-334-7	—	—
—	Acute Tox. 2, Skin Corr. 1A, Eye Dam. 1, STOT RE 1; H300 H314 H318 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
21324-40-3	244-334-7	Lithium hexafluorophosphate(1-)	15 - 22 %
—	**Specific Conc. Limits, M-factors and ATE**	—	—
—	oral: ATE = not determined	—	—

SECTION 4: First aid measures

4.1. Description of first aid measures

General information

In case of accident or if you feel unwell, seek medical advice immediately. Seek medical attention if symptoms persist.

After inhalation

Remove from exposure and move to fresh air immediately. If breathing is difficult, administer oxygen. Seek medical attention immediately.

After contact with skin

Remove contaminated clothing and shoes. Rinse skin thoroughly with plenty of water for at least 15 minutes. Seek medical attention immediately.

After contact with eyes

Flush eyes with plenty of water for at least 15 minutes, occasionally lifting the upper and lower eyelids, until chemical residue is removed. Seek medical attention immediately.

After ingestion

Give at least 2 glasses of milk or water. Induce vomiting if patient is conscious. Call a physician immediately.

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

In the event of exposure to internal contents: irritation and burning of eyes and skin; lung irritation if inhaled; poisoning if swallowed. Target organs: nerves, liver and kidneys.

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

Seek immediate medical attention in all cases of exposure to battery internal contents, inhalation of fumes, or ingestion.

SECTION 5: Firefighting measures

5.1. Extinguishing media

Suitable extinguishing media

Large quantities of water (for cooling), carbon dioxide (CO_2).
Co-ordinate fire-fighting measures to the fire surroundings.

5.2. Special hazards arising from the substance or mixture

Battery cell may vent or rupture when subjected to excessive heat. Hazardous combustion products: carbon monoxide, carbon dioxide, lithium oxide fumes, toxic fluorine-containing pyrolysis products.

5.3. Advice for firefighters

Wear self-contained breathing apparatus (SCBA) and full protective equipment. Cool containers/cells with large amounts of water.

Additional information

Do not incinerate batteries. If cell vents, evacuate area until fumes dissipate. Provide maximum ventilation.

SECTION 6: Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

General advice

If battery internal material is released, remove all personnel from the area until fumes dissipate. Avoid skin and eye contact and inhalation of vapours.

For non-emergency personnel

Wear appropriate personal protective equipment (respiratory protection, gloves, protective clothing, safety glasses with side shields).

For emergency responders

Wear personal protection equipment (refer to section 8).

6.2. Environmental precautions

Prevent battery contents from entering surface water, drains, or soil.

6.3. Methods and material for containment and cleaning up

For containment

Place leaking battery in a plastic bag and then into a steel container. Allow battery to cool before handling.

For cleaning up

Wipe up spilled liquid with an absorbent cloth. Dispose of contaminated material by incineration according to local regulations. Remove spilled liquid with absorbent and incinerate.

Other information

Provide maximum ventilation to clear out hazardous gases. Use appropriate personal protective equipment.

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

Do not open, destroy, crush, puncture, or incinerate batteries. Do not short-circuit terminals, overcharge, or force over-discharge. Do not immerse in liquids. Handle with care to avoid mechanical damage.

Advice on protection against fire and explosion

Do not expose to heat above 70 °C or throw into fire. Do not short-circuit. Avoid mechanical abuse. Keep away from ignition sources.

Advice on general occupational hygiene

Avoid contact with internal battery contents. Wash hands thoroughly after handling. Do not eat, drink or smoke in areas where batteries are handled.

Further information on handling

Do not install batteries with incorrect polarity. Avoid physical or electrical abuse.

7.2. Conditions for safe storage, including any incompatibilities

Requirements for storage rooms and vessels

Store in a cool, dry and well-ventilated area with minimal temperature variation. Avoid direct sunlight and proximity to heating equipment.

Hints on joint storage

Do not store together with: Oxidising agents, alkalis, water, strong acids, halogenated hydrocarbons.

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

In case of battery venting, provide maximum ventilation. Avoid confined areas with venting cell cores.

Individual protection measures, such as personal protective equipment

Eye/face protection

Not required under normal conditions of use. Safety glasses with side shields recommended when handling venting batteries.

Hand protection

Not required under normal conditions of use. Protective gloves recommended when handling venting batteries.

Skin protection

Not required under normal conditions of use. Protective clothing recommended when handling venting batteries.

Respiratory protection

Not required under normal conditions of use. Respiratory protection (appropriate breathing mask) required in case of battery venting or rupture.

Thermal hazards

Avoid exposure to temperatures above 70 °C.

Environmental exposure controls

Prevent battery contents from entering environment in case of leakage.

SECTION 9: Physical and chemical properties

9.1. Information on basic physical and chemical properties

Physical state:	Solid (sealed article)
Colour:	Not specified
Odour:	Odourless under normal conditions; ether-like odour if leaking
Odour threshold:	not applicable
Melting point/freezing point:	Not determined
Boiling point or initial boiling point and boiling range:	Not determined
Flammability:	Not applicable as supplied; electrolyte components are flammable if exposed
Lower explosion limits:	not determined
Upper explosion limits:	not determined
Flash point:	Not applicable unless individual components exposed
Auto-ignition temperature:	Not applicable as supplied
Decomposition temperature:	Not determined
pH-Value:	Not applicable as supplied
Viscosity / kinematic:	Not applicable as supplied
Water solubility:	Not applicable as supplied
Solubility in other solvents	not determined
Partition coefficient n-octanol/water:	not determined
Vapour pressure:	Not determined
Density:	Not applicable unless individual components exposed
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

Product is stable under conditions described in Section 7. Stable when stored in cool, dry conditions below 70 °C.

10.3. Possibility of hazardous reactions

In case of fire or overheating: danger of venting, rupture, or explosion of cells. Handle with care - avoid mechanical abuse, overcharge, short circuit.

10.4. Conditions to avoid

Heat above 70 °C or incineration. Deformation. Mutilation. Crushing. Disassembly. Overcharge. Short circuit. Prolonged exposure to humid conditions.

10.5. Incompatible materials

Oxidising agents, alkalis (lye), water, strong acids, mineral acids, halogenated hydrocarbons.

10.6. Hazardous decomposition products

In case of fire or venting: carbon monoxide, carbon dioxide, lithium oxide fumes, toxic and corrosive metal oxide smoke, toxic fluorine-containing pyrolysis products, toxic fumes. May form peroxides.

SECTION 11: Toxicological information

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

Acute toxicity

No hazard under normal intact conditions. If internal contents are released: Lithium hexafluorophosphate is acutely toxic if swallowed (Acute Tox. 2; H300). Electrolyte solvents may be harmful.

ATEmix calculated

ATE (oral) not determined; ATE (dermal) not determined; ATE (inhalation vapour) not determined; ATE (inhalation dust/mist) not determined

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

Irritation and corrosivity

Internal contents (electrolyte) may cause severe skin burns and eye damage if released. Vapour fumes may be very irritating to the eyes and skin.

Sensitising effects

Not classified under normal conditions.

Carcinogenic/mutagenic/toxic effects for reproduction

Not classified under normal conditions.

STOT-single exposure

Inhalation of fumes from venting battery may cause lung irritation (STOT SE).

STOT-repeated exposure

Lithium hexafluorophosphate: causes damage to organs through prolonged or repeated exposure (STOT RE 1; H372).

Aspiration hazard

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

Information on likely routes of exposure

Under normal intact conditions: no exposure to internal contents. In case of rupture or leakage: skin contact, eye contact, inhalation of vapours/fumes, ingestion. Target organs: nerves, liver, kidneys.

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

No known environmental hazards under normal intact conditions.

12.2. Persistence and degradability

Slowly biodegradable (electrolyte components).

12.3. Bioaccumulative potential

Slowly bio-degradable; bioaccumulation potential not fully determined.

12.4. Mobility in soil

The product has not been tested.

12.5. Results of PBT and vPvB assessment

Not determined for the article as a whole.

12.6. Endocrine disrupting properties

No information available.

12.7. Other adverse effects

No known environmental hazards at present.

Further information

Do not allow battery contents 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 incinerate or subject cells to temperatures in excess of 70 °C. It is recommended to fully discharge the battery before disposal. Do not pierce or burn. Dispose of in accordance with applicable local regulations. Battery contents should not be allowed to enter surface water, drains, or soil.

Contaminated packaging

Dispose of packaging and discharged batteries according to applicable local legislation and regulations.

SECTION 14: Transport information

Land transport (ADR/RID)

14.1. UN number or ID number: UN3480 / UN3481
14.2. UN proper shipping name: Lithium ion batteries / Lithium ion batteries contained in equipment
14.3. Transport hazard class(es): 9
14.4. Packing group: N/A

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: UN3480 / UN3481
14.2. UN proper shipping name: Lithium ion batteries / Lithium ion batteries contained in equipment
14.3. Transport hazard class(es): 9
14.4. Packing group: N/A

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: UN3480 / UN3481
14.2. UN proper shipping name: Lithium ion batteries / Lithium ion batteries contained in equipment
14.3. Transport hazard class(es): 9
14.4. Packing group: N/A

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: UN3480 / UN3481
14.2. UN proper shipping name: Lithium ion batteries / Lithium ion batteries contained in equipment
14.3. Transport hazard class(es): 9
14.4. Packing group: N/A

Hazard label: 9A

Special Provisions: A48 A88 A99 A154 A164 A181 A185 A213
Limited quantity Passenger: Forbidden
Passenger LQ: Forbidden
Excepted quantity: E0
IATA-packing instructions - Passenger: 965 / 966 / 967
IATA-max. quantity - Passenger: 35 kg
IATA-packing instructions - Cargo: 965 / 966 / 967
IATA-max. quantity - Cargo: 35 kg

14.5. Environmental hazards

ENVIRONMENTALLY HAZARDOUS: No

14.6. Special precautions for user

Protect against heat, condensation, and humidity. Handle with care - avoid bumps, friction and impact. Goods shall comply with IATA DGR 60th edition Packing Instructions 965-967 and IMDG CODE (Amdt. 38-16) 2016 Special Provision 188. UN38.3 test compliance required.

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
RID: Regulations concerning the international carriage of dangerous goods by rail
ADN: European Agreement concerning the International Carriage of Dangerous Goods by Inland Waterways
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

Not classified as a hazardous article under normal intact conditions	Calculation method
Class 9 Miscellaneous dangerous goods (transport classification)	Calculation method
If internal contents are released: Flam. Liq. 2; H225	Calculation method
If internal contents are released: Skin Corr. 1A; H314	Calculation method
If internal contents are released: Eye Dam. 1; H318	Calculation method
If internal contents are released: STOT RE 1; H372	Calculation method
If internal contents are released: Acute Tox. 2; H300	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.)