



**Lithium-ion battery**

00377-0095

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

**1.1. Product identifier**

Lithium-ion battery

**Further trade names**

Battery Typ:

12V 19.2Wh; 12V24Wh; 12V28.8Wh; 12V36Wh; 12V42Wh; 12V48Wh; 12V60Wh; 12V72Wh; 12V84Wh; 12V96Wh

Note: This product is an "article" and is not an object that is required to issue Safety Data Sheets (SDS) by regulations concerning chemical substances. This SDS voluntarily offers helpful information for your safe handling and environmental care.

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

**Use of the substance/mixture**

Lithium-Ion battery

**1.3. Details of the supplier of the safety data sheet**

Company name: Robert Bosch GmbH  
Automotive Aftermarket  
Place: D-76227 Karlsruhe  
Telephone: +49 721-942-0

Responsible Department: Responsible for the safety data sheet: sds@gbk-ingenheim.de

**1.4. Emergency telephone number:** INTERNATIONAL: +49 - (0) 6132 - 84463, GBK GmbH (24h - 7d/w - 365d/a)  
England and Wales: NHS Direct - 0845 4647; Scotland: NHS 24 - 08454 24 24  
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**SECTION 2: Hazards identification**

**2.1. Classification of the substance or mixture**

**Regulation (EC) No. 1272/2008**

Hazard categories:

Acute toxicity: Acute Tox. 4

Skin corrosion/irritation: Skin Corr. 1A

Serious eye damage/eye irritation: Eye Dam. 1

Specific target organ toxicity - repeated exposure: STOT RE 2

Hazard Statements:

Harmful if swallowed.

Causes severe skin burns and eye damage.

Causes serious eye damage.

May cause damage to organs through prolonged or repeated exposure.

The following information is required only in case of exposure to interior battery components after damage of the external battery casing.

Undamaged, closed batteries do not represent a danger to the health.

Note: This product is an "article" and is not an object that is required to issue Safety Data Sheets (SDS) by regulations concerning chemical substances. This SDS voluntarily offers helpful information for your safe handling and environmental care.

**2.2. Label elements**

**Regulation (EC) No. 1272/2008**

**Hazard components for labelling**

Lithium hexafluorophosphate

Ethylene carbonate

**Signal word:** Danger





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**Pictograms:**



**Hazard statements**

- H302 Harmful if swallowed.
- H314 Causes severe skin burns and eye damage.
- H373 May cause damage to organs through prolonged or repeated exposure.

**Precautionary statements**

- P260 Do not breathe dust/fume/gas/mist/vapours/spray.
- P301+P330+P331 IF SWALLOWED: Rinse mouth. Do NOT induce vomiting.
- P304+P340 IF INHALED: Remove person to fresh air and keep comfortable for breathing.
- P305+P351+P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
- P310 Immediately call a POISON CENTER/doctor.
- P501 Dispose of contents/container to in accordance with local and national regulations.

**Additional advice on labelling**

There is no hazard when the measures for handling and storage are followed.

**2.3. Other hazards**

No hazards in case of an intact battery and observation of the instructions for use.

**SECTION 3: Composition/information on ingredients**

**3.2. Mixtures**

**Chemical characterization**

Lithium-Ion Battery: Mixture of the following substances

Plastic container:

- < 22,6 % PA66 CAS 32131-17-2
- < 9,7 % Glass, oxide, chemicals CAS 65997-17-3



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**Hazardous components**

CAS No	Chemical name			Quantity
	EC No	Index No	REACH No	
	Classification according to Regulation (EC) No. 1272/2008 [CLP]			
15365-14-7	Iron lithium phosphate			< 19 %
	476-700-9			
7440-50-8	Copper			< 10,6 %
	231-159-6		01-2119480154-42	
7782-42-5	Graphite			< 8,1 %
	231-955-3		01-2119486977-12	
21324-40-3	Lithium hexafluorophosphate			< 6,1 %
	244-334-7		01-2119383485-29	
	Acute Tox. 3, Skin Corr. 1A, Eye Dam. 1, STOT RE 1; H301 H314 H318 H372			
96-49-1	Ethylene carbonate			< 6,1 %
	202-510-0		01-2119540523-46	
	Acute Tox. 4, Eye Irrit. 2, STOT RE 2; H302 H319 H373			
616-38-6	dimethyl carbonate			< 6,1 %
	210-478-4	607-013-00-6	01-2119548399-23	
	Flam. Liq. 2; H225			
7429-90-5	Aluminium			< 4,7 %
	231-072-3		01-2119529243-45	
9003-07-0	Polypropylene, homopolymer			< 3,4 %
9002-88-4	Polyethylene			< 3,4 %
	618-339-3			
24937-79-9	Poly(vinylidene fluoride) (PVDF)			< 1,4 %
9004-32-4	Carboxymethyl cellulose sodium salt			< 0,4 %
	618-378-6			
9003-55-8	Styrene Butadiene Rubber (SBR)			< 0,4 %

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

**Further Information**

Because of the battery structure the dangerous ingredients will not be available if used properly.  
Undamaged, closed batteries do not represent a danger to the health.

information:

The terminals contain 60% copper (CAS No. 7740-50-8), 40% zinc (CAS No. 7740-66-6), max. 0,5% lead (CAS-Nr. 7439-92-1) and max. 0,004% cadmium (CAS-Nr. 7440-43-9).





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## **SECTION 4: First aid measures**

### **4.1. Description of first aid measures**

#### **General information**

The following first aid measures are required only in case of exposure to interior battery components after damage of the external battery casing.

Undamaged, closed batteries do not represent a danger to the health.

#### **After inhalation**

Ensure of fresh air.

Wash mouth and nasal passages with water.

Call a physician immediately.

If patient is not breathing, apply artificial respiration.

Do not make mouth-to-mouth resuscitation.

Corrosive to the respiratory tract.

#### **After contact with skin**

Wash off immediately with plenty of water and soap for at least 15 minutes.

Take off contaminated clothing and wash it before reuse.

Call a physician immediately.

#### **After contact with eyes**

Rinse immediately with plenty of water, also under the eyelids, for at least 15 minutes.

Remove contact lenses, if present and easy to do. Continue rinsing.

Seek medical treatment by eye specialist.

#### **After ingestion**

Rinse mouth.

Drink plenty of water or milk.

Never give anything by mouth to an unconscious person.

Do not induce vomiting.

Call a physician immediately.

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

In case of electrolyte leakage:

Causes severe irritation of eyes, skin and mucous membranes.

Ingestion of aqueous solution causes gastrointestinal burns.

May cause respiratory irritation.

Coughing

Shortness of breath

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

Treat symptoms.

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## **SECTION 5: Firefighting measures**

### **5.1. Extinguishing media**

#### **Suitable extinguishing media**

Use in case of small fire: Water, carbon dioxide (CO<sub>2</sub>), Dry powder, Sand.

Use in case of large fire: water spray jet, Alcohol-resistant foam.

#### **Unsuitable extinguishing media**

Not known.

### **5.2. Special hazards arising from the substance or mixture**

During contact of electrolyte with water hydrofluoric acid can be formed.

Heat development under short-circuit conditions.

Fire may produce:

Smoke contains combustible, irritating/corrosive and toxic gases.

### **5.3. Advice for firefighters**

I Wear self-contained breathing apparatus and protective suit.

#### **Additional information**

If possible, remove batteries from fire fighting area. If heated above 125°C, batteries can vent.

Batteries is not flammable but internal organic material will burn if the batteries is incinerated.

Stand upwind of the fire while extinguishing





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Collect contaminated water / firefighting water separately.

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**SECTION 6: Accidental release measures**

**6.1. Personal precautions, protective equipment and emergency procedures**

The following information is required only in case of exposure to interior battery components after damage of the external battery casing.

Undamaged, closed batteries do not represent a danger to the health.

Use personal protective clothing.

Avoid contact with skin, eyes and clothing.

Avoid breathing fume and gas.

Keep away noninvolved persons.

Keep away from sources of heat (e.g. hot surfaces), sparks and open flames.

**6.2. Environmental precautions**

Do not discharge into the drains/surface waters/ground water.

**6.3. Methods and material for containment and cleaning up**

Take up mechanically and send for disposal.

Waste disposal according to local regulations.

In case of electrolyte leakage:

Take up with absorbent material (e.g. general-purpose binder).

**6.4. Reference to other sections**

Information for safe handling look up chapter 7.

Information for personal protective equipment look up section 8.

Information for disposal see section 13.

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**SECTION 7: Handling and storage**

**7.1. Precautions for safe handling**

**Advice on safe handling**

Follow the directions.

Avoid short circuiting the battery. Avoid mechanical damage of the battery. Do not open or disassemble.

Do not throw into fire.

Handle in accordance with good industrial hygiene and safety practice.

At work do not eat, drink and smoke.

Wash hands and skin before breaks and after work.

**Advice on protection against fire and explosion**

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

**7.2. Conditions for safe storage, including any incompatibilities**

**Requirements for storage rooms and vessels**

Store only in original container at cool and aired place.

Protect from moisture.

**Further information on storage conditions**

Protect from heat and direct solar radiation.

**7.3. Specific end use(s)**

Lithium-Ion Battery

Note: This product is an "article".

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**SECTION 8: Exposure controls/personal protection**

**8.1. Control parameters**



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**Exposure limits (EH40)**

CAS No	Substance	ppm	mg/m <sup>3</sup>	fibres/ml	Category	Origin
7429-90-5	Aluminium metal, inhalable dust	-	10		TWA (8 h)	WEL
7440-50-8	Copper, fume	-	0.2		TWA (8 h)	WEL
16984-48-8	Fluoride (inorganic as F)	-	2.5		TWA (8 h)	WEL

**Additional advice on limit values**

During normal charging and discharging there is no release of product.

No hazards in case of an intact battery and observation of the instructions for use.

**8.2. Exposure controls****Appropriate engineering controls**

Ensure adequate ventilation.

Provide eye bath.

Provide emergency shower.

**Protective and hygiene measures**

Handle in accordance with good industrial hygiene and safety practice.

When using do not eat, drink or smoke.

Wash hands and skin before breaks and after work.

**Eye/face protection**

No special measures necessary if used correctly.

In case of electrolyte leakage: Safety goggles with side protection, Face shield

**Hand protection**

No special measures necessary if used correctly.

In case of electrolyte leakage: Wear suitable gloves

**Skin protection**

No special measures necessary if used correctly.

In case of electrolyte leakage: Protective suit. Chemical resistant apron (EN 467). Boots.

**Respiratory protection**

No special measures necessary if used correctly.

If the occupational exposure limit is exceeded, suitable respiratory protection must be worn.

In case of electrolyte leakage: Wear respiratory protection.

**Environmental exposure controls**

No special measures necessary if used correctly.

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

Physical state: Solid, Battery

Colour: n.a.

Odour: Odourless

pH-Value: n.a.

**Changes in the physical state**

Flash point: n.a.

Lower explosion limits: n.a.

Upper explosion limits: n.a.

**Auto-ignition temperature**

Solid: n.a.

Water solubility: insoluble

**9.2. Other information**

Battery Typ:

12V 19.2Wh; 12V24Wh; 12V28.8Wh; 12V36Wh; 12V42Wh; 12V48Wh; 12V60Wh; 12V72Wh; 12V84Wh;



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12V96Wh

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

No uncommon reactivity known.

**10.2. Chemical stability**

Stable under normal conditions.

**10.3. Possibility of hazardous reactions**

No dangerous reaction known under conditions of normal use.

**10.4. Conditions to avoid**

Short circuit

Overcharge

Incompatible materials

heat, sparks, open flames, hot surfaces

Handle with care - avoid shock, friction and impact.

Avoid high temperatures

Protect against direct sun radiation.

Protect from atmospheric moisture and water.

**10.5. Incompatible materials**

Marine water, Water, strong oxidizing agents, Strong acid.

**10.6. Hazardous decomposition products**

No decomposition if stored and applied as directed.

Heat development under short-circuit conditions.

Fire may produce: toxic gases/vapours, Metallic oxides, carbon monoxide (CO), carbon dioxide (CO<sub>2</sub>).**SECTION 11: Toxicological information****11.1. Information on toxicological effects****Toxicokinetics, metabolism and distribution**

No hazards in case of an intact battery and observation of the instructions for use.

Undamaged, closed batteries do not represent a danger to the health.

**Acute toxicity**

Harmful if swallowed.

There is no hazard when the measures for handling and storage are followed.

**ATEmix calculated**

ATE (oral) 925,9 mg/kg

CAS No	Chemical name			
	Exposure route	Dose	Species	Source
21324-40-3	Lithium hexafluorophosphate			
	oral	LD50 50 - 300 mg/kg	Rat	
96-49-1	Ethylene carbonate			
	oral	ATE 500 mg/kg		
616-38-6	dimethyl carbonate			
	oral	LD50 13000 mg/kg	Ratte	GESTIS
	dermal	LD50 > 5000 mg/kg	Kaninchen	GESTIS

**Irritation and corrosivity**

Causes severe skin burns and eye damage.

**Sensitising effects**

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

**Carcinogenic/mutagenic/toxic effects for reproduction**

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



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**STOT-single exposure**

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

**STOT-repeated exposure**

May cause damage to organs through prolonged or repeated exposure. (Lithium hexafluorophosphate)

**Aspiration hazard**

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

**Practical experience****Other observations**

If appropriately handled and if in accordance with the general hygienic rules, no damages to health have become known.

**SECTION 12: Ecological information****12.1. Toxicity**

There is no hazard when the measures for handling and storage are followed.

**12.2. Persistence and degradability**

No data available

**12.3. Bioaccumulative potential**

No data available

**12.4. Mobility in soil**

No data available

**12.5. Results of PBT and vPvB assessment**

No data available

**12.6. Other adverse effects**

The following information is required only in case of exposure to interior battery components after damage of the external battery casing.

Harmful to the environment

Should not be released into the environment.

**SECTION 13: Disposal considerations****13.1. Waste treatment methods****Advice on disposal**

Waste disposal according to local regulations.

Do not incinerate.

**Waste disposal number of waste from residues/unused products**

160605 WASTES NOT OTHERWISE SPECIFIED IN THE LIST; batteries and accumulators; other batteries and accumulators

**SECTION 14: Transport information****Land transport (ADR/RID)****14.1. UN number:**

UN 3480

**14.2. UN proper shipping name:**

LITHIUM ION BATTERIES

**14.3. Transport hazard class(es):**

9

**14.4. Packing group:**

-

Hazard label:

9A



Classification code:

M4

Special Provisions:

188 230 348 376 377

Limited quantity:

0

Excepted quantity:

E0

Transport category:

2







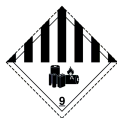
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Tunnel restriction code: E

**Inland waterways transport (ADN)**

**14.1. UN number:** UN 3480  
**14.2. UN proper shipping name:** Lithium-ion battery  
**14.3. Transport hazard class(es):** 9  
**14.4. Packing group:** -  
 Hazard label: 9A



Classification code: M4  
 Special Provisions: 188 230 348 376 377  
 Limited quantity: 0  
 Excepted quantity: E0

**Marine transport (IMDG)**

**14.1. UN number:** UN 3480  
**14.2. UN proper shipping name:** LITHIUM ION BATTERIES  
**14.3. Transport hazard class(es):** 9  
**14.4. Packing group:** -  
 Hazard label: 9A



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

**Air transport (ICAO-TI/IATA-DGR)**

**14.1. UN number:** UN 3480  
**14.2. UN proper shipping name:** LITHIUM ION BATTERIES  
**14.3. Transport hazard class(es):** 9  
**14.4. Packing group:** -  
 Hazard label: 9A



Special Provisions: A99 A154 A164 A183 A201 A206 A331  
 Limited quantity Passenger: Forbidden  
 Passenger LQ: Forbidden  
 Excepted quantity: E0  
 IATA-packing instructions - Passenger: Forbidden  
 IATA-max. quantity - Passenger: Forbidden  
 IATA-packing instructions - Cargo: See 965  
 IATA-max. quantity - Cargo: See 965

**14.5. Environmental hazards**

ENVIRONMENTALLY HAZARDOUS: no

**14.6. Special precautions for user**

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

**14.7. Transport in bulk according to Annex II of Marpol and the IBC Code**

The transport takes place only in approved and appropriate packaging.





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## SECTION 15: Regulatory information

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

#### EU regulatory information

##### Additional information

No information available.

##### National regulatory information

##### Additional information

Note: This product is an "article" and is not an object that is required to issue Safety Data Sheets (SDS) by regulations concerning chemical substances. This SDS voluntarily offers helpful information for your safe handling and environmental care.

### 15.2. Chemical safety assessment

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

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## SECTION 16: Other information

### Changes

Changes in chapter: 3.2

### 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

IMDG = International Maritime Code for Dangerous Goods

IATA/ICAO = International Air Transport Association / International Civil Aviation Organization

MARPOL = International Convention for the Prevention of Pollution from Ships

IBC-Code = International Code for the Construction and Equipment of Ships Carrying Dangerous Chemicals in Bulk

GHS = Globally Harmonized System of Classification and Labelling of Chemicals

REACH = Registration, Evaluation, Authorization and Restriction of Chemicals

CAS = Chemical Abstract Service

EN = European norm

ISO = International Organization for Standardization

DIN = Deutsche Industrie Norm

PBT = Persistent Bioaccumulative and Toxic

LD = Lethal dose

LC = Lethal concentration

EC = Effect concentration

IC = Median immobilisation concentration or median inhibitory concentration

### Relevant H and EUH statements (number and full text)

H225 Highly flammable liquid and vapour.

H301 Toxic if swallowed.

H302 Harmful if swallowed.

H314 Causes severe skin burns and eye damage.

H318 Causes serious eye damage.

H319 Causes serious eye irritation.

H372 Causes damage to organs through prolonged or repeated exposure.

H373 May cause damage to organs through prolonged or repeated exposure.

### Further Information

Data of items 4 to 8, as well as 10 to 12, do partly not refer to the use and the regular employing of the product (in this sense consult information on use and on product), but to liberation of major amounts in case of accidents and irregularities. The information describes exclusively the safety requirements for the product(s) and is based on the present level of our knowledge. This data does not constitute a guarantee for the characteristics of the product(s) as defined by the legal warranty regulations. (n.a. = not applicable; n.d. = not determined)

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

