

Tel: +49 (0)7151-1707-0

Fax: +49 (0)7151-1707-110

Amtsgericht Stuttgart HRA 728253

Persönlich haftender Gesellschafter: Föll GmbH

Amtsgericht Stuttgart HRB260321

E-Mail: info@rems.de

Internet: www.rems.de

Geschäftsführer:

Dr.-Ing. Christoph Föll-Laubengeiger

Dr.-Ing. Rudolf Wagner

PRODUKTSICHERHEITSDATENBLATT MATERIAL SAFETY DATA SHEET

Lithium-Ionen-Manganoxid-Batterie
Lithium ion manganese oxide battery

Artikel-Nr.: 571555 R14H / Item no.: 571555 R14H

Gemäß Verordnung (EG) Nr. 1907/2006 (REACH) muss ein Sicherheitsdatenblatt lediglich für Stoffe und Zubereitungen zur Verfügung gestellt werden. Batterien sind von den Anforderungen dieser Verordnung nicht betroffen.

According to Regulation (EC) No. 1907/2006 (REACH), a safety data sheet must be provided solely for substances and preparations. Batteries are not affected by the requirements of this Regulation.

1. Bezeichnung des Produkts und Angabe des Herstellers

Product Designation and Name of the Manufacturer

Identifizierung: <i>Identification</i>	Produktkategorie: <i>Product category</i>	Lithium-Ionen-Batterie <i>Lithium-ion battery</i>
	Bezeichnung: <i>Model designation</i>	4S2P
	Nennspannung: <i>Nominal voltage</i>	14.4V
	Nennkapazität: <i>Nominal capacity</i>	5.0Ah
	Nennenergie: <i>Nominal energy</i>	72 Wh
	Chemisches System: <i>Chemical system</i>	Lithium-Manganoxid / Graphit <i>Lithium manganese oxide / Graphite</i>
	Wiederaufladbar: <i>Rechargeable</i>	Ja <i>Yes</i>
Hersteller: <i>Manufacturer</i>	Name und Adresse: <i>Name and address</i>	REMS GmbH & Co KG Stuttgarter Straße 83 D-71332 Waiblingen
	Telefon / <i>phone:</i>	+49 (0) 7151 / 1707-0
	Telefax / <i>fax:</i>	+49 (0) 7151 / 1707-110
	E-mail / <i>e-mail:</i>	info@rems.de

Tel: +49 (0)7151-1707-0
Fax: +49 (0)7151-1707-110
Amtsgericht Stuttgart HRA 728253
Persönlich haftender Gesellschafter: Föll GmbH
Amtsgericht Stuttgart HRB260321

E-Mail: info@rems.de
Internet: www.rems.de
Geschäftsführer:
Dr.-Ing. Christoph Föll-Laubengeiger
Dr.-Ing. Rudolf Wagner

2. Mögliche Gefahren

Possible Hazards

Klassifizierung: Die Li-Ion Batterie hat eine Nennenergie von $\leq 100\text{Wh}$ und unterliegt daher bestimmten Sonderbestimmungen im Gefahrgutrecht.

Classification: *This lithium-ion battery has a nominal energy of $\leq 100\text{Wh}$, which is why it is subject to certain special provisions under the hazardous substances law.*

Gefahren: Lithium-Ionen-Batterien können bei unsachgemäßer Handhabung Feuer entwickeln, explodieren oder chemische Verätzungen verursachen. Batterien keines falls kurzschließen, durchstoßen, in Feuer werfen, quetschen, in Wasser tauchen, erzwungen entladen oder Temperaturen aussetzen, die außerhalb der angegebenen Betriebsspanne des Produktes liegt. Bitte lesen Sie die Bedienungsanleitung sorgfältig. Unter normalen Bedingungen treten keine gefährlichen Stoffe aus und es kann zu keiner Berührung mit toxischen Stoffen kommen. Ein Expositionsrisiko besteht nur im Falle unsachgemäßer Handhabung (mechanisch, thermisch, elektrisch), die zur Aktivierung der Sicherheitsventile und/oder zum Aufbrechen des Gehäuses führt. Auslaufen der Elektrolytflüssigkeit, Reaktion der Elektrodenmaterialien mit Feuchtigkeit/Wasser oder Batterieentlüftung/ Feuer/ Explosion können, abhängig von den Begleitumständen, die Folge sein.

Hazards: *When handled improperly, lithium-ion batteries may explode, or cause fire or chemical burns. Batteries must not be short-circuited, punctured, thrown into fire, crushed, immersed in water, forcibly discharged or exposed to temperatures exceeding the product's specified operating range. Please read the operating instructions thoroughly.*
The escape of and contact with any hazardous and toxic substances is not possible under normal conditions of use. A risk of exposure only exists in case of improper (mechanical, thermal, electrical) use which leads to the activation of safety valves and/or the rupture of the battery housing. Depending on the surrounding circumstances, the following might occur: electrolyte leakage, reaction of the electrode materials with moisture/water or battery venting/fire/explosion.

Toxizität: Brennt eine Batterie, so können Reizungen infolge von entstehendem Rauch oder entstehenden Dämpfen an Augen, Haut und Atemwegen auftreten.

Toxicity: *If a battery burns, smoke or vapors are generated. These may cause eye, skin and respiratory tract irritations.*

Tel: +49 (0)7151-1707-0

Fax: +49 (0)7151-1707-110

Amtsgericht Stuttgart HRA 728253

Persönlich haftender Gesellschafter: Föll GmbH

Amtsgericht Stuttgart HRB260321

E-Mail: info@rems.de

Internet: www.rems.de

Geschäftsführer:

Dr.-Ing. Christoph Föll-Laubengeiger

Dr.-Ing. Rudolf Wagner

3. Zusammensetzung und Angaben zu den Bestandteilen

Composition and Information About the Individual Components

Die folgenden Komponenten sind in der verschlossenen Zelle enthalten:

The following components are contained in the sealed cell

Komponenten	Materialname	Konzentrationsbereich (wt %)	CAS-Nummer
Positive Elektrode	Lithium Übergangsmetall-Oxide Li[M]m[O]n	20~60	12190-79-3 12057-17-9 182442-95-1
Basis positive Elektrode	Aluminium	1~10	7429-90-5
Negative Elektrode	Kohle	10~30	7429-90-5
Basis negative Elektrode	Kupfer	1~15	7440-44-0
Elektrolyt	Organische Elektrolyte beinhalten hauptsächlich Ester Carbonate	5~25	Vertraulich
Äußere Hülle	Aluminium, Eisen, Aluminium laminiertes Plastik	1~30	7429-90-5; 7439-89-6

Component	Material name	Concentration range (wt %)	CAS number
Positive electrode	Lithium transition metal oxidate Li[M]m[O]n	20~60	12190-79-3 12057-17-9 182442-95-1
Positive electrode's base	Aluminum	1~10	7429-90-5
Negative electrode	Carbon	10~30	7429-90-5
Negative electrode's base	Copper	1~15	7440-44-0
Electrolyte	Organic electrolyte principally involves ester carbonate	5~25	Confidential
Outer case	Aluminum, iron, aluminum laminated plastic	1~30	7429-90-5; 7439-89-6

Tel: +49 (0)7151-1707-0

Fax: +49 (0)7151-1707-110

Amtsgericht Stuttgart HRA 728253

Persönlich haftender Gesellschafter: Föll GmbH

Amtsgericht Stuttgart HRB260321

E-Mail: info@rems.de

Internet: www.rems.de

Geschäftsführer:

Dr.-Ing. Christoph Föll-Laubengeiger

Dr.-Ing. Rudolf Wagner

4. Erste-Hilfe-Maßnahmen

First Aid Measures

Die unter Punkt 3 angegebenen Chemikalien befinden sich in einem abgedichteten Gehäuse, sodass sie bei normalem Gebrauch nicht austreten können. Die Gefahr des Austretens besteht nur durch mechanische Beschädigung des Gehäuses.

The chemicals stated in Section 3 are contained in a sealed housing so that they cannot escape during normal use. Leakage may only be caused as a result of mechanical damage to the housing.

Sollten Chemikalien austreten, ist Folgendes zu beachten:

If chemicals do leak, the following must be observed

- | | |
|----------------------|--|
| Einatmen: | Austretende Gase können zu Atemwegbeschwerden führen. Sofort lüften oder an die frische Luft gehen, in schlimmeren Fällen sofort einen Arzt rufen. |
| <i>Inhalation:</i> | <i>Escaping gases may cause respiratory tract irritation. Immediately ventilate or leave the room to get into fresh air. In more serious cases, call a doctor immediately.</i> |
| Hautkontakt: | Es können Hautirritationen auftreten. Haut mit Seife und Wasser gründlich waschen. |
| <i>Skin contact:</i> | <i>Skin irritations may occur. Thoroughly wash the skin with soap and water.</i> |
| Augenkontakt: | Es kann zu Reizungen an den Augen kommen. Sofort die Augen 15 Minuten lang gründlich mit Wasser spülen, dann einen Arzt aufsuchen. |
| <i>Eye contact:</i> | <i>Eye irritations may occur. Immediately and thoroughly rinse the eyes with water for 15 minutes then seek medical assistance.</i> |

5. Maßnahmen zur Brandbekämpfung

Fire Fighting Measures

- | | |
|-------------------------|--|
| Im Brandfall: | Verwenden Sie nur Feuerlöscher der Brandklasse D (Trockenpulver). |
| <i>In case of fire:</i> | <i>Only use Class D (dry powder) fire extinguishers.</i> |
| Achtung: | Bevor Sie beginnen das Feuer zu löschen, stellen Sie sich bitte auf die Seite des Feuers, aus der der Wind kommt. So atmen Sie keine giftigen Dämpfe ein. |
| <i>Caution:</i> | <i>Before you start extinguishing the fire, be sure to go to the side of the fire from which the wind is coming. In this way, you will not inhale any toxic vapours.</i> |

Tel: +49 (0)7151-1707-0
Fax: +49 (0)7151-1707-110
Amtsgericht Stuttgart HRA 728253
Persönlich haftender Gesellschafter: Föll GmbH
Amtsgericht Stuttgart HRB260321

E-Mail: info@rems.de
Internet: www.rems.de
Geschäftsführer:
Dr.-Ing. Christoph Föll-Laubengeiger
Dr.-Ing. Rudolf Wagner

6. Maßnahmen bei unbeabsichtigter Freisetzung

Measures to Be Implemented in Case of Accidental Leakage

Ausgelaufene Elektrolytflüssigkeit sollte mit einem saugfähigen Stück Stoff aufgewischt werden.
Leaked electrolyte fluid should be wiped up with an absorbent cloth.

Im Falle einer größeren Freisetzung sollte Schutzkleidung getragen werden:
Personal protective equipment should be worn in case of larger leakages:

- ↪ **schützende Kleidung**
protective clothing
- ↪ **Gasmaske gegen organische Gase**
gas mask for protection against organic gases
- ↪ **Schutzbrille**
safety goggles
- ↪ **Schutzhandschuhe**
protective gloves

7. Handhabung und Lagerung

Handling and Storage

Handhabung: Die Batterie nicht öffnen, zerquetschen oder zerlegen oder aus großer Höhe fallen lassen oder etwas anlöten.

Handling: *Neither open, crush nor disassemble the battery, nor let it drop from a great height nor solder anything onto it.*

Laden: Die Ladetemperatur muss zwischen 0 °C und +45 °C betragen.
Die Batterie darf nur mit dem dazugehörigen Ladegerät geladen werden.

Charging: *The charging temperature must be between +32 °F and +113 °F.*
Only use the charger designated for this battery.

Entladen: Das Entladen der Batterie darf nur zwischen -20 °C und +60 °C erfolgen.
Discharging: *The battery may only be discharged at temperatures from -4 °F to +140 °F.*

Achtung: Falsche Handhabung kann zu einer Explosion führen oder einen Brand entfachen!
Caution: *Improper handling may cause fire or explosion!*

Lagerung: Temperatur: -20 °C bis +40 °C unter 3 Monaten
Storage: *Temperature: -4 °F to +104°F for less than 3 months*

Luftfeuchtigkeit: 0 % bis 80 %
Humidity range: 0 % to 80 %

Das Lager muss gut durchlüftet sein. / *Store in a well-ventilated place.*

Ein Kurzschluss kann einen Brand verursachen. / *Short circuits may cause fires.*

Die Batterien dürfen nicht mit anderen metallischen Gegenständen gelagert werden. / *Do not store along with other metal objects.*

Tel: +49 (0)7151-1707-0

Fax: +49 (0)7151-1707-110

Amtsgericht Stuttgart HRA 728253

Persönlich haftender Gesellschafter: Föll GmbH

Amtsgericht Stuttgart HRB260321

E-Mail: info@rems.de

Internet: www.rems.de

Geschäftsführer:

Dr.-Ing. Christoph Föll-Laubengeiger

Dr.-Ing. Rudolf Wagner

8. Überwachen der gelagerten Waren und Schutzausrüstung

Monitoring of the Stored Goods and Personal Protective Equipment

Die Hinweise unter Punkt 7 sind zu beachten. Die Einhaltung der Lagertemperatur innerhalb der vorgegebenen Grenzen muß fortlaufend überwacht werden. Ebenso sind eine gute Durchlüftung und eine Luftfeuchtigkeit in den angegebenen Grenzwerten sicher zu stellen. Für den normalen Umgang mit den Batterien ist keine Schutzausrüstung erforderlich.

Observe the information stated in Section 7. Continuously monitor the storage temperature so as to ensure that it is within the specified limits. Apart from that, it is required to ensure good ventilation and that the humidity does not exceed the specified limits. No protective equipment is required during normal handling.

9. Physikalische und chemische Eigenschaften

Physical and Chemical Properties

Aussehen: 8 Zellen im Gehäuse
Appearance: Housing with 8 cells

Gewicht: 520 g
Weight: 520 g

Chemische Eigenschaften: siehe Punkt 3
Chemical properties: see Section 3

10. Stabilität und Reaktivität

Stability and Reactivity

Durch eine Lagerung über 12 Monate wird die Kapazität der Batterie reduziert und die voraussichtliche Funktionsdauer wird verkürzt. Das Gehäuse kann durch auslaufenden Elektrolyt von innen beschädigt werden.

Storage periods of more than 12 months will decrease the battery's capacity and expected lifespan. Electrolyte leakages may damage the housing on the inside.

11. Toxikologische Angaben

Toxicological Information

Im normalen Umgang treten keine gefährlichen Stoffe aus der Batterie aus und es kann somit zu keiner Berührung mit toxischen Stoffen kommen.

The escape of and contact with any hazardous and toxic substances is not possible under normal conditions of use.

Tel: +49 (0)7151-1707-0
Fax: +49 (0)7151-1707-110
Amtsgericht Stuttgart HRA 728253
Persönlich haftender Gesellschafter: Föll GmbH
Amtsgericht Stuttgart HRB260321

E-Mail: info@rems.de
Internet: www.rems.de
Geschäftsführer:
Dr.-Ing. Christoph Föll-Laubengeiger
Dr.-Ing. Rudolf Wagner

12. Umweltspezifische Angaben

Environment-Related Information

Bei normalem Umgang tritt keine Umweltschädigung durch die Batterie auf. Sie muss jedoch nach dem Gebrauch gesondert entsorgt werden, da sie gefährliche Chemikalien enthält. Siehe Punkt 13.

Provided that the battery is handled properly, environmental pollution does not occur. After use, however, the battery must be disposed of separately as it contains hazardous chemicals. See Section 13.

13. Hinweise zur Entsorgung

Disposal Instructions

Eine Batterie ist Sondermüll.

Die Entsorgung der Batterie darf nur über ein zugelassenes Rücknahmesystem erfolgen.
Die Batterie darf auf keinen Fall über den Restmüll entsorgt werden.

Batteries are classified as hazardous waste.

*The battery may only be disposed of by returning it to an authorized collection point.
It is prohibited to dispose of the battery with normal household waste.*

14. Angaben zum Transport

Transportation information

Allgemeine Erklärung

General explanation

Einschränkende Regularien sind für den Versand dieses Produkts mit Luftfracht, im Straßenverkehr, im Zugverkehr oder auf dem Seeweg maßgeblich. Hinweise auf diese Regularien finden Sie untenstehend. Seit sich die Gesetzgebung regelmäßig ändert, muss der Transporteur sicherstellen, dass die Produkte nach den zum Zeitpunkt des Transports gültigen und maßgeblichen Richtlinien transportiert werden. Sollten Sie in dieser Angelegenheit Hilfe benötigen, wenden Sie sich bitte an den Hersteller der Produkte.

Restrictive regulations are applicable to the product's transport by air, road, rail or sea. Below you will find references to these regulations. As these laws are subject to frequent changes, the transport company shall ensure that the products are transported according to the regulations applicable at the time of shipment. Please contact the manufacturer of the products if you need any assistance in this matter.

Transport der Batterie laut Richtlinie UN 3480/3481 (1).

Die Regularien für Batterien mit einer Nennleistung von ≤ 100 Wh sind anzuwenden.

Transportation of the battery according to Directive UN 3480/3481 (1).

The regulations for batteries with nominal energy ≤ 100 Wh have to be used.

Die Batterie **muss** gegen Kurzschluss gesichert sein.

*The battery **must** be protected against short circuits.*

Tel: +49 (0)7151-1707-0
Fax: +49 (0)7151-1707-110
Amtsgericht Stuttgart HRA 728253
Persönlich haftender Gesellschafter: Föll GmbH
Amtsgericht Stuttgart HRB260321

E-Mail: info@rems.de
Internet: www.rems.de
Geschäftsführer:
Dr.-Ing. Christoph Föll-Laubengeiger
Dr.-Ing. Rudolf Wagner

Die Transportregularien richten sich nach den länderspezifischen Verordnungen und der Art des Transportweges.
The transport regulations depend on the country-specific provisions and on the type of transport.

Jedes Packstück muss mit folgenden Aufklebern gekennzeichnet sein und es muss ein Begleitschreiben, wie unten angegeben, beigelegt sein:

Each package must be marked with the following labels. Furthermore, it is required to enclose an accompanying note as stated below

Aufkleber für Transport auf Straße/Bahn (ADR/RID) und See (IMD-Code)

Labelling for transport by road/rail and sea



+ Aufkleber mit Absender und Empfänger
+ Label stating the consignor and consignee

ADR/RID/IMDG-Code: Die Batterie erfüllt die Bedingungen der Sondervorschrift 188.
The battery meets the requirements of special provision 188.

Aufkleber für Versand / Luftfracht CAO

Shipping label/cargo aircraft only (CAO)



+ Aufkleber mit Absender und Empfänger
+ Label stating the consignor and consignee

Begleitschreiben / *Accompanying note:* UN3480, LITHIUM ION BATTERIES, 9, PI 965 IB

Sondervorschrift 188

special provision 188

ICAO-TI/IATA-DGR: Verpackungsanweisung 965, Teil II oder Teil IB
Packing instruction 965, Part II or Part IB

Tel: +49 (0)7151-1707-0
Fax: +49 (0)7151-1707-110
Amtsgericht Stuttgart HRA 728253
Persönlich haftender Gesellschafter: Föll GmbH
Amtsgericht Stuttgart HRB260321

E-Mail: info@rems.de
Internet: www.rems.de
Geschäftsführer:
Dr.-Ing. Christoph Föll-Laubengeiger
Dr.-Ing. Rudolf Wagner

15. Vorschriften und Regelwerke

Provisions and Regulations

Hinweise auf Vorschriften zur Beförderung gefährlicher Güter:

References to provisions concerning the transport of hazardous goods:

Gefahrgutbeförderungsgesetz (GGBefG)
Transportation of Dangerous Goods Act (GGBefG)

Gefahrgutverordnung Straße, Eisenbahn und Binnenschifffahrt (GGVSEB)
Ordinance on the Transport of Dangerous Goods by Road, Rail and Inland Waterways (GGVSEB)

Gefahrgutverordnung See (GGVSee)
Ordinance on the Transport of Dangerous Goods by Sea (GGVSee)

Luftverkehrsgesetz (LuftVG), Luftverkehrs-Zulassungs-Ordnung (LuftVZO)
Air Traffic Act (LuftVG), Air Traffic Licensing Order (LuftVZO)

Europäisches Übereinkommen über die internationale Beförderung gefährlicher Güter auf der Straße (ADR)
European Agreement concerning the International Carriage of Dangerous Goods by Road (ADR)

Ordnung für die internationale Eisenbahnbeförderung gefährlicher Güter (RID)
Regulation concerning the International Carriage of Dangerous Goods by Rail (RID)

Europäisches Übereinkommen über die Beförderung gefährlicher Güter auf Binnenwasserstraßen (ADN)
European Agreement concerning the International Carriage of Dangerous Goods by Inland Navigation (ADN)

Internationaler Code für die Beförderung gefährlicher Stoffe mit Seeschiffen (IMDG-Code)
International Maritime Dangerous Goods Code (IMDG-Code)

International Civil Aviation Organization –
Technische Vorschriften für die Beförderung gefährlicher Güter im Luftverkehr (ICAO-TI)
Technical Instructions for the Safe Transport of Dangerous Goods by Air (ICAO-TI)

International Air Transport Association –
Vorschriften für die Beförderung gefährlicher Güter (IATA-DGR)
Dangerous Goods Regulations (IATA-DGR)

Tel: +49 (0)7151-1707-0
Fax: +49 (0)7151-1707-110
Amtsgericht Stuttgart HRA 728253
Persönlich haftender Gesellschafter: Föll GmbH
Amtsgericht Stuttgart HRB260321

E-Mail: info@rems.de
Internet: www.rems.de
Geschäftsführer:
Dr.-Ing. Christoph Föll-Laubengeiger
Dr.-Ing. Rudolf Wagner

16. Ladezustand gemäß Änderung der IATA-Gefahrgutvorschriften ab dem 01. April 2016

State of Charge in Accordance with the Changes to the IATA Dangerous Goods Regulations Effective from 1 April 2016

Entsprechend der Änderung der IATA-Gefahrgutvorschriften, die ab dem 01. April 2016 in Kraft tritt, bestätigt REMS GmbH & Co KG, dass die ab dem 01. April 2016 produzierten Lithium-Ionen-Akkus (UN 3480), mit einem Ladezustand (SoC) von höchstens 30% deren Auslegungskapazität zur Beförderung übergeben werden.

In accordance with the changes to the IATA Dangerous Goods Regulations, which entered into force on 1 April 2016, REMS GmbH & Co KG confirms that all lithium-ion batteries (UN 3480) manufactured from 1 April 2016 will be handed over for transportation with their state of charge (SoC) not exceeding 30% of their design capacity.

17. Sonstige Angaben

Other Information

Diese Informationen wurden nach bestem Wissen und Gewissen sorgfältig zusammengestellt. REMS GmbH & Co KG schließt jegliche Gewährleistung auf die Genauigkeit, Zuverlässigkeit und Vollständigkeit der aufgeführten Informationen aus! Es liegt in der Verantwortung des Anwenders die Angemessenheit und Vollständigkeit und Aktualität dieser Informationen in Bezug auf seinen besonderen Verwendungszweck zu prüfen.

This information has been meticulously compiled to the best of our knowledge and belief. REMS GmbH & Co KG excludes any warranty whatsoever for the accuracy, reliability or completeness of the information provided herein! It is the user's responsibility to check the information's suitability, completeness and timeliness with regard to the relevant purpose of use.

Tel: +49 (0)7151-1707-0

Fax: +49 (0)7151-1707-110

Amtsgericht Stuttgart HRA 728253

Persönlich haftender Gesellschafter: Föll GmbH

Amtsgericht Stuttgart HRB260321

E-Mail: info@rems.de

Internet: www.rems.de

Geschäftsführer:

Dr.-Ing. Christoph Föll-Laubengeiger

Dr.-Ing. Rudolf Wagner

FICHE DE DONNÉES DE SÉCURITÉ PRODUIT MATERIAL SAFETY DATA SHEET

Batterie Lithium-ions-oxyde de manganèse
Lithium ion manganese oxide battery

Réf.: 571555 R14H / Item no.: 571555 R14H

En respect de l'ordonnance (CE) n° 1907/2006 (REACH), il faut mettre seulement une fiche de données de sécurité à disposition pour les substances et les préparations. Les batteries ne sont concernées par les exigences de cette ordonnance.

According to Regulation (EC) No. 1907/2006 (REACH), a safety data sheet must be provided solely for substances and preparations. Batteries are not affected by the requirements of this Regulation.

1. Désignation du produit et fabricant

Product Designation and Name of the Manufacturer

Identification: <i>Identification</i>	Catégorie de produit: <i>Product category</i>	Batterie Lithium-Ions <i>Lithium-ion battery</i>
	Désignation: <i>Model name</i>	4S2P
	Tension nominale: <i>Nominal voltage</i>	14.4V
	Capacité nominale: <i>Nominal capacity</i>	5.0Ah
	Énergie nominale: <i>Nominal energy</i>	72Wh
	Système chimique: <i>Chemical system:</i>	Lithium-oxyde de manganèse / Graphite <i>Lithium manganese oxide / Graphite</i>
	Rechargeable: <i>Rechargeable</i>	Oui <i>Yes</i>

Fabricant: <i>Manufacturer</i>	Nom et adresse: <i>Name and address</i>	REMS GmbH & Co KG Stuttgarter Straße 83 D-71332 Waiblingen
	Tél. / <i>phone:</i>	+49 (0) 7151-1707-0
	Fax / <i>fax:</i>	+49 (0) 7151-1707-0
	E-mail / <i>e-mail:</i>	info@rems.de

Tel: +49 (0)7151-1707-0
Fax: +49 (0)7151-1707-110
Amtsgericht Stuttgart HRA 728253
Persönlich haftender Gesellschafter: Föll GmbH
Amtsgericht Stuttgart HRB260321

E-Mail: info@rems.de
Internet: www.rems.de
Geschäftsführer:
Dr.-Ing. Christoph Föll-Laubengeiger
Dr.-Ing. Rudolf Wagner

2. Risques possibles

Possible Hazards

- Classification:** La batterie Li-Ion possède une énergie nominale de > 100 Wh et est ainsi soumise aux dispositions spécifiques du droit relatif aux marchandises dangereuses.
- Classification:** *This lithium-ion battery has a nominal energy of > 100Wh, which is why it is subject to certain special provisions under the hazardous substances law.*
- Risques:** En cas de manipulation non conforme, les batteries Lithium-Ions peuvent développer du feu, exploser ou provoquer des irritations chimiques. Ne court-circuiter en aucun cas les batteries, ne pas les heurter, les jeter au feu, les écraser, les plonger dans l'eau, les décharger de force ou les exposer à des températures situées en dehors de la plage de tension du produit. Veuillez lire attentivement la notice d'utilisation. Dans des conditions normales, aucune substance dangereuse ne sort et aucun contact avec des substances toxiques ne peut survenir. Un risque d'exposition existe uniquement dans le cas d'une manipulation non conforme (mécanique, thermique, électrique) qui conduit à l'activation des valves de sécurité et/ou à la cassure du boîtier. La fuite du liquide électrolyte, la réaction des matériaux des électrodes avec de l'humidité / de l'eau ou la purge d'air des batteries / l'incendie / l'explosion, en fonction des circonstances annexes, peuvent être la conséquence.
- Hazards:** *When handled improperly, lithium-ion batteries may explode, or cause fire or chemical burns. Batteries must not be short-circuited, punctured, thrown into fire, crushed, immersed in water, forcibly discharged or exposed to temperatures exceeding the product's specified operating range. Please read the operating instructions thoroughly.*
The escape of and contact with any hazardous and toxic substances is not possible under normal conditions of use. A risk of exposure only exists in case of improper (mechanical, thermal, electrical) use which leads to the activation of safety valves and/or the rupture of the battery housing. Depending on the surrounding circumstances, the following might occur: electrolyte leakage, reaction of the electrode materials with moisture/water or battery venting/fire/explosion.
- Toxicité:** Si une batterie brûle, des irritations peuvent survenir suite à la formation de fumée ou de vapeurs sur les yeux, la peau et les voies respiratoires.
- Toxicity:** *If a battery burns, smoke or vapours are generated. These may cause eye, skin and respiratory tract irritations.*

Tel: +49 (0)7151-1707-0

Fax: +49 (0)7151-1707-110

Amtsgericht Stuttgart HRA 728253

Persönlich haftender Gesellschafter: Föll GmbH

Amtsgericht Stuttgart HRB260321

E-Mail: info@rems.de

Internet: www.rems.de

Geschäftsführer:

Dr.-Ing. Christoph Föll-Laubengeiger

Dr.-Ing. Rudolf Wagner

3. Composition et informations sur les composants

Composition and Information About the Individual Components

Les composants suivants sont contenus dans la cellule fermée:

The following components are contained in the sealed cell.

Portion	Nom de la substance	Taux de concentration (poids %)	N° CAS
Électrode positive	Oxyde de métal Transition Lithium Li[M]m[O]n	20~60	12190-79-3 12057-17-9 182442-95-1
Base de l'électrode positive	Aluminium	1~10	7429-90-5
Électrode négative	Carbone	10~30	7429-90-5
Base de l'électrode négative	Cuivre	1~15	7440-44-0
Electrolyte	Électrolyte organique implique principalement l'ester-carbonate	5~25	Confidentiel
Boîtier extérieur	Aluminium, fer, plastique laminé d'aluminium	1~30	7429-90-5; 7439-89-6

Component	Material name	Concentration range (wt %)	CAS number
Positive electrode	Lithium transition metal oxidate Li[M]m[O]n	20~60	12190-79-3 12057-17-9 182442-95-1
Positive electrode's base	Aluminum	1~10	7429-90-5
Negative electrode	Carbon	10~30	7429-90-5
Negative electrode's base	Copper	1~15	7440-44-0
Electrolyte	Organic electrolyte principally involves ester carbo- nate	5~25	Confidential
Outer case	Aluminum, iron, aluminum laminated plastic	1~30	7429-90-5; 7439-89-6

Tel: +49 (0)7151-1707-0

Fax: +49 (0)7151-1707-110

Amtsgericht Stuttgart HRA 728253

Persönlich haftender Gesellschafter: Föll GmbH

Amtsgericht Stuttgart HRB260321

E-Mail: info@rems.de

Internet: www.rems.de

Geschäftsführer:

Dr.-Ing. Christoph Föll-Laubengeiger

Dr.-Ing. Rudolf Wagner

4. Mesures de premiers secours

First Aid Measures

Les produits chimiques indiqués au point 3 se trouvent dans un boîtier étanche si bien qu'ils ne peuvent pas fuir dans le cadre d'une utilisation normale. Le risque de fuite est uniquement lié à des dégradations mécaniques du boîtier.

The chemicals are contained in a sealed housing so that they cannot escape during normal use. Leakage may only be caused as a result of mechanical damage to the housing.

Si des produits chimiques fuient, observer ce qui suit:

If chemicals do leak, the following must be observed

- | | |
|------------------------------|---|
| Inhalation: | Les gaz sortant peuvent entraîner des lésions des voies respiratoires. Ventiler immédiatement ou se rendre à l'air frais, dans les cas les plus graves, appeler immédiatement un médecin. |
| <i>Inhalation:</i> | <i>Escaping gases may cause respiratory tract irritation. Immediately ventilate or leave the room to get into fresh air. In more serious cases, call a doctor immediately.</i> |
| Contact avec la peau: | Des irritations de la peau peuvent survenir. Laver soigneusement la peau au savon et à l'eau. |
| <i>Skin contact:</i> | <i>Skin irritations may occur. Thoroughly wash the skin with soap and water.</i> |
| Contact visuel: | Des irritations des yeux peuvent survenir. Rincer immédiatement les yeux pendant 15 minutes à l'eau et consulter un médecin. |
| <i>Eye contact:</i> | <i>Eye irritations may occur. Immediately and thoroughly rinse the eyes with water for 15 minutes then seek medical assistance.</i> |

5. Mesures de lutte contre les incendies

Fire Fighting Measures

- | | |
|---------------------------|--|
| En cas d'incendie: | Utilisez uniquement les extincteurs de la classe d'incendie D (poudre sèche). |
| <i>In case of fire:</i> | <i>Only use Class D (dry powder) fire extinguishers.</i> |
| Attention: | Avant de commencer à éteindre le feu, veuillez vous placer sur le côté de l'incendie d'où vient le vent. Ainsi, vous ne respirez pas de vapeurs nocives. |
| <i>Caution:</i> | <i>Before you start extinguishing the fire, be sure to go to the side of the fire from which the wind is coming. In this way, you will not inhale any toxic vapours.</i> |

Tel: +49 (0)7151-1707-0

Fax: +49 (0)7151-1707-110

Amtsgericht Stuttgart HRA 728253

Persönlich haftender Gesellschafter: Föll GmbH

Amtsgericht Stuttgart HRB260321

E-Mail: info@rems.de

Internet: www.rems.de

Geschäftsführer:

Dr.-Ing. Christoph Föll-Laubengeiger

Dr.-Ing. Rudolf Wagner

6. Mesures à prendre en cas de dispersion accidentelle

Measures to Be Implemented in Case of Accidental Leakage

La fuite de liquide électrolyte doit être essuyée par un morceau de tissu absorbant.

Leaked electrolyte fluid should be wiped up with an absorbent cloth.

En cas de grande libération, porter des vêtements de protection.

Personal protective equipment should be worn in case of larger leakages:

- ↪ **vêtements de protection**
protective clothing
- ↪ **Masque à gaz contre les gaz organiques**
gas mask for protection against organic gases
- ↪ **Lunettes de protection**
safety goggles
- ↪ **Gants de protection**
protective gloves

7. Manipulation et stockage

Handling and Storage

- Manipulation:** Ne pas ouvrir la batterie, ne pas l'écraser, la démonter, la faire tomber d'une grande hauteur ni la braser.
- Handling:** *Neither open, crush nor disassemble the battery, nor let it drop from a great height nor solder anything onto it.*
- Charger:** La température de charge doit être située entre 0°C et +45°C.
La batterie doit être uniquement chargée avec le chargeur correspondant.
- Charging:** *The charging temperature must be between +32 °F and +113 °F.
Only use the charger designated for this battery.*
- Décharger:** La batterie doit uniquement se décharger entre -20°C et +60°C.
- Discharging:** *The battery may only be discharged at temperatures from -4 °F to +140 °F.*
- Attention:** Une mauvaise manipulation peut entraîner une explosion ou développer un incendie!
- Caution:** *Improper handling may cause fire or explosion!*
- Stockage:** Température: -20 °C à +40 °C sous 3 mois
- Storage:** *Temperature: -4 °F to +104°F, for less than 3 months*
- Humidité de l'air: 0 % à 80 %
Humidity range: 0 % to 80 %
- Le stock doit être bien ventilé. / *Store in a well-ventilated place.*
Un court-circuit peut entraîner un incendie. / *Short circuits may cause fires.*
Les batteries ne doivent pas être stockées avec d'autres objets métalliques. / *Do not store along with other metal objects.*

Tel: +49 (0)7151-1707-0

Fax: +49 (0)7151-1707-110

Amtsgericht Stuttgart HRA 728253

Persönlich haftender Gesellschafter: Föll GmbH

Amtsgericht Stuttgart HRB260321

E-Mail: info@rems.de

Internet: www.rems.de

Geschäftsführer:

Dr.-Ing. Christoph Föll-Laubengeiger

Dr.-Ing. Rudolf Wagner

8. Surveillance des marchandises stockées et équipement de protection

Monitoring of the Stored Goods and Personal Protective Equipment

Respecter les consignes du point 7. Le respect de la température de stockage dans les limites prescrites doit être surveillé en permanence. Il faut également garantir une bonne ventilation et une humidité de l'air dans les valeurs-limites indiquées. Aucun équipement de protection n'est nécessaire pour la gestion normale des batteries.

Observe the information stated in Section 7. Continuously monitor the storage temperature so as to ensure that it is within the specified limits. Apart from that, it is required to ensure good ventilation and that the humidity does not exceed the specified limits. No protective equipment is required during normal handling.

9. Propriétés physiques et chimiques

Physical and Chemical Properties

Aspect: 8 cellules dans le boîtier.

Appearance: Housing with 8 cells.

Poids: 520 g

Weight: 520 g

Propriétés chimiques: voir point 3

Chemical properties: voir Section 3

10. Stabilité et réactivité

Stability and Reactivity

En cas de stockage de plus de 12 mois, la capacité de la batterie est réduite et sa durée prévisionnelle de fonctionnement est raccourcie. Le boîtier peut être endommagé à l'intérieur en raison de la fuite d'électrolytes.

Storage periods of more than 12 months will decrease the battery's capacity and expected lifespan. Electrolyte leakages may damage the housing on the inside.

11. Données toxicologiques

Toxicological Information

Dans des conditions normales, aucune substance dangereuse ne sort de la batterie et aucun contact avec des substances toxiques ne peut survenir.

The escape of and contact with any hazardous and toxic substances is not possible under normal conditions of use.

Tel: +49 (0)7151-1707-0

Fax: +49 (0)7151-1707-110

Amtsgericht Stuttgart HRA 728253

Persönlich haftender Gesellschafter: Föll GmbH

Amtsgericht Stuttgart HRB260321

E-Mail: info@rems.de

Internet: www.rems.de

Geschäftsführer:

Dr.-Ing. Christoph Föll-Laubengeiger

Dr.-Ing. Rudolf Wagner

12. Informations écologiques

Environment-Related Information

Dans le cadre d'une utilisation normale, la batterie n'entraîne aucune dégradation environnementale. Cependant, elle doit être éliminée spécialement après utilisation car elle contient des produits chimiques dangereux. Voir point 13.

Provided that the battery is handled properly, environmental pollution does not occur. After use, however, the battery must be disposed of separately as it contains hazardous chemicals. See Section 13.

13. Remarques sur la mise au rebut

Disposal Instructions

Une batterie est un déchet spécial.

La mise au rebut de la batterie doit être uniquement effectuée par un système de reprise homologué.

En aucun cas, la batterie ne doit être mise au rebut avec les déchets ménagers.

Batteries are classified as hazardous waste.

The battery may only be disposed of by returning it to an authorized collection point.

It is prohibited to dispose of the battery with normal household waste.

14. Informations sur le transport

Transportation information

Explication générale

General explanation

Les réglementations de restriction font foi pour l'expédition de ce produit par voie aérienne, routière, ferroviaire ou maritime. Vous trouverez ci-dessous ces réglementations. Étant donné que la législation change régulièrement, le transporteur doit garantir que les produits sont transportés en respect des directives en vigueur au moment du transport. Si vous avez besoin d'aide à ce sujet, veuillez vous adresser au fabricant des produits.

Restrictive regulations are applicable to the product's transport by air, road, rail or sea. Below you will find references to these regulations. As these laws are subject to frequent changes, the transport company shall ensure that the products are transported according to the regulations applicable at the time of shipment. Please contact the manufacturer of the products if you need any assistance in this matter.

Transport conformément à la recommandation ONU 3480/3481 (1).

Les réglementations pour les batteries d'une capacité nominale ≤ 100 Wh doivent être appliquées.

Transportation of the battery according to Directive UN 3480/3481 (1).

The regulations for batteries with nominal energy ≤ 100 Wh have to be used.

La batterie **doit** être sécurisée contre les court-circuits.

*The battery **must** be protected against short circuits.*

Tel: +49 (0)7151-1707-0
Fax: +49 (0)7151-1707-110
Amtsgericht Stuttgart HRA 728253
Persönlich haftender Gesellschafter: Föll GmbH
Amtsgericht Stuttgart HRB260321

E-Mail: info@rems.de
Internet: www.rems.de
Geschäftsführer:
Dr.-Ing. Christoph Föll-Laubengeiger
Dr.-Ing. Rudolf Wagner

Les dispositions de transport se fondent sur les ordonnances nationales et le type de transport.
The transport regulations depend on the country-specific provisions and on the type of transport.

Chaque cargaison doit porter les étiquettes et la note d'accompagnement figurant ci-dessous:
Each package must be marked with the following labels. Furthermore, it is required to enclose an accompanying note as stated below

Étiquetage pour le transport par route / par rail et Par mer
Labelling for transport by road/rail and sea



+ étiquette avec adresse de l'expéditeur / du destinataire
+ Label stating the consignor and consignee

ADR/RID/IMDG-Code: La batterie répond aux exigences de la disposition particulière 188.
The battery meets the requirements of special provision 188.

Étiquette d'expédition / avion cargo seulement CAO
Shipping label/cargo aircraft only (CAO)



+ étiquette avec adresse de l'expéditeur / du destinataire
+ Label stating the consignor and consignee

Note d'accompagnement / *Accompanying note:* UN 3480 LITHIUM-ION BATTERIES, 9, -, (E)

Disposition particulière 188.
special provision 188

ICAO-TI/IATA-DGR: Instructions d'emballage 965, partie II ou partie IB
Packing instruction 965, Part II or Part IB

Tel: +49 (0)7151-1707-0

Fax: +49 (0)7151-1707-110

Amtsgericht Stuttgart HRA 728253

Persönlich haftender Gesellschafter: Föll GmbH

Amtsgericht Stuttgart HRB260321

E-Mail: info@rems.de

Internet: www.rems.de

Geschäftsführer:

Dr.-Ing. Christoph Föll-Laubengeiger

Dr.-Ing. Rudolf Wagner

15. Directives et règles

Provisions and Regulations

Références aux dispositions concernant le transport de marchandises dangereuses:

References to provisions concerning the transport of hazardous goods:

Loi sur le transport de marchandises dangereuses (GGBefG)

Transportation of Dangerous Goods Act (GGBefG)

Ordonnance sur les marchandises dangereuses route, rail et navigation intérieure (GGVSEB)

Ordinance on the Transport of Dangerous Goods by Road, Rail and Inland Waterways (GGVSEB)

Ordonnance sur les marchandises dangereuses par voies maritimes (GGVSee)

Ordinance on the Transport of Dangerous Goods by Sea (GGVSee)

Loi sur la circulation aérienne (LuftVG), Ordonnance sur les licences de trafic aérien (LuftVZO)

Air Traffic Act (LuftVG), Air Traffic Licensing Order (LuftVZO)

Convention européenne sur le transport international de marchandises dangereuses par route (ADR)

European Agreement concerning the International Carriage of Dangerous Goods by Road (ADR)

Commande de transport international de marchandises dangereuses par chemin de fer (RID)

Regulation concerning the International Carriage of Dangerous Goods by Rail (RID)

Convention européenne sur le transport des marchandises dangereuses par voies de navigation intérieures (ADN)

European Agreement concerning the International Carriage of Dangerous Goods by Inland Navigation (ADN)

Code du transport maritime international de marchandises dangereuses (IMDG-Code)

International Maritime Dangerous Goods Code (IMDG-Code)

International Civil Aviation Organization –

Règlements techniques pour le transport de marchandises dangereuses par voie aérienne (ICAO-TI)

Technical Instructions for the Safe Transport of Dangerous Goods by Air (ICAO-TI)

International Air Transport Association –

Réglementation pour le transport de marchandises dangereuses (IATA-DGR)

Dangerous Goods Regulations (IATA-DGR)

Tel: +49 (0)7151-1707-0

Fax: +49 (0)7151-1707-110

Amtsgericht Stuttgart HRA 728253

Persönlich haftender Gesellschafter: Föll GmbH

Amtsgericht Stuttgart HRB260321

E-Mail: info@rems.de

Internet: www.rems.de

Geschäftsführer:

Dr.-Ing. Christoph Föll-Laubengeiger

Dr.-Ing. Rudolf Wagner

16. Niveau de charge selon les modifications du règlement IATA en vigueur à compter du 01 avril 2016

State of Charge in Accordance with the Changes to the IATA Dangerous Goods Regulations Effective from 1 April 2016

Conformément aux modifications apportées à la réglementation IATA sur les marchandises dangereuses à compter du 1er avril 2016, REMS GmbH & Co KG confirme qu'à compter du 1er avril 2016, toutes les batteries au lithium-ion fabriquées ne sont envoyées que dans un état de charge ne dépassant pas 30% de leur capacité nominale.

In accordance with the changes to the IATA Dangerous Goods Regulations, which entered into force on 1 April 2016, REMS GmbH & Co KG confirms that all lithium-ion batteries (UN 3480) manufactured from 1 April 2016 will be handed over for transportation with their state of charge (SoC) not exceeding 30% of their design capacity.

17. Autres indications

Other information

Ces informations ont été rassemblées soigneusement en notre âme et conscience. REMS GmbH & Co KG ne garantit pas la précision, la fiabilité et l'intégralité des informations listées ! Il relève de la responsabilité de l'utilisateur de vérifier l'adéquation, l'intégralité et l'actualité de ces informations du point de vue de son utilisation prévue.

This information has been meticulously compiled to the best of our knowledge and belief. REMS GmbH & Co KG excludes any warranty whatsoever for the accuracy, reliability or completeness of the information provided herein! It is the user's responsibility to check the information's suitability, completeness and timeliness with regard to the relevant purpose of use.

Tel: +49 (0)7151-1707-0

Fax: +49 (0)7151-1707-110

Amtsgericht Stuttgart HRA 728253

Persönlich haftender Gesellschafter: Föll GmbH

Amtsgericht Stuttgart HRB260321

E-Mail: info@rems.de

Internet: www.rems.de

Geschäftsführer:

Dr.-Ing. Christoph Föll-Laubengeiger

Dr.-Ing. Rudolf Wagner

SCHEMA DI SICUREZZA DEL PRODOTTO MATERIAL SAFETY DATA SHEET

Batteria agli ioni di litio-ossido di manganese
Lithium ion manganese oxide battery

N. Articolo: 571555 R14H / Item no.: 571555 R14H

Ai sensi del Regolamento (CE) N. 1907/2006 (REACH) l'obbligo di fornire una scheda dei dati di sicurezza sussiste esclusivamente per sostanze e preparati. Le batterie non sono soggette ai requisiti di questo Regolamento.

According to Regulation (EC) No. 1907/2006 (REACH), a safety data sheet must be provided solely for substances and preparations. Batteries are not affected by the requirements of this Regulation.

1. Denominazione del prodotto e dati identificativi del produttore

Product Designation and Name of the Manufacturer

Identificazione: <i>Identification:</i>	Categoria del prodotto: <i>Product category</i>	Batteria agli ioni di litio <i>Lithium-ion battery</i>
	Denominazione: <i>Model name</i>	4S2P
	Tensione nominale: <i>Nominal voltage</i>	14.4V
	Capacità nominale: <i>Nominal capacity</i>	5.0Ah
	Energia nominale: <i>Nominal energy</i>	72Wh
	Sistema chimico: <i>Chemical system</i>	Ossido di litio e manganese/grafite <i>Lithium manganese oxide / Graphite</i>
	Ricaricabile: <i>Rechargeable</i>	Sì <i>Yes</i>

Produttore: <i>Manufacturer</i>	Nome e indirizzo: <i>Name and address</i>	REMS GmbH & Co KG Stuttgarter Straße 81 D-71332 Waiblingen
	Telefono / <i>phone:</i>	+49 (0) 7151-1707-0
	Fax / <i>fax:</i>	+49 (0) 7151-1707-110
	E-Mail / <i>e-mail:</i>	info@rems.de

Tel: +49 (0)7151-1707-0

Fax: +49 (0)7151-1707-110

Amtsgericht Stuttgart HRA 728253

Persönlich haftender Gesellschafter: Föll GmbH

Amtsgericht Stuttgart HRB260321

E-Mail: info@rems.de

Internet: www.rems.de

Geschäftsführer:

Dr.-Ing. Christoph Föll-Laubengeiger

Dr.-Ing. Rudolf Wagner

2. Identificazione dei pericoli

Possible Hazards

Classificazione: La batteria agli ioni di litio ha un'energia nominale di > 100 Wh ed è pertanto soggetta a specifiche disposizioni previste dalla legge sulle merci pericolose.

Classification: *This lithium-ion battery has a nominal energy of > 100Wh, which is why it is subject to certain special provisions under the hazardous substances law.*

Pericoli: Le batterie agli ioni di litio, in caso di manipolazione non corretta, possono comportare il rischio di incendi, esplosioni o lesioni chimiche. In alcuni casi cortocircuitare, forare, incenerire, schiacciare, immergere nell'acqua, scaricare forzatamente o esporre a temperature superiori al limite consentito per il prodotto. Leggere attentamente le istruzioni d'uso. In condizioni normali d'uso non si verifica alcuna fuoriuscita di sostanze pericolose né alcun contatto con sostanze tossiche. Un rischio di esposizione sussiste solo nel caso di manipolazione inadeguata (meccanica, termica o elettrica), che determina l'attivazione delle valvole di sicurezza e/o la rottura dell'alloggiamento della batteria. Le conseguenze possono essere la fuoriuscita di liquido elettrolitico, una reazione dei materiali degli elettrodi con l'umidità/l'acqua o sfiato della batteria/incendio/esplosione, a seconda delle circostanze.

Hazards: *When handled improperly, lithium-ion batteries may explode, or cause fire or chemical burns. Batteries must not be short-circuited, punctured, thrown into fire, crushed, immersed in water, forcibly discharged or exposed to temperatures exceeding the product's specified operating range. Please read the operating instructions thoroughly.*
The escape of and contact with any hazardous and toxic substances is not possible under normal conditions of use. A risk of exposure only exists in case of improper (mechanical, thermal, electrical) use which leads to the activation of safety valves and/or the rupture of the battery housing. Depending on the surrounding circumstances, the following might occur: electrolyte leakage, reaction of the electrode materials with moisture/water or battery venting/fire/explosion.

Tossicità: Se una batteria si incendia, il fumo o i vapori che si formano possono irritare gli occhi, la cute e le vie respiratorie.

Toxicity: *If a battery burns, smoke or vapours are generated. These may cause eye, skin and respiratory tract irritations.*

Tel: +49 (0)7151-1707-0

Fax: +49 (0)7151-1707-110

Amtsgericht Stuttgart HRA 728253

Persönlich haftender Gesellschafter: Föll GmbH

Amtsgericht Stuttgart HRB260321

E-Mail: info@rems.de

Internet: www.rems.de

Geschäftsführer:

Dr.-Ing. Christoph Föll-Laubengeiger

Dr.-Ing. Rudolf Wagner

3. Composizione e informazioni sugli ingredienti

Composition and Information About the Individual Components

Nella cella chiusa sono contenuti i componenti riportati di seguito:

The following components are contained in the sealed cell:

Parte	Nome del materiale	Intervallo di concentrazione (wt %)	Numero CAS
Elettrodo positivo	Ossidi dei metalli di transizione del litio Li[M]m[O]n	20~60	12190-79-3 12057-17-9 182442-95-1
Base dell'elettrodo positivo	Alluminio	1~10	7429-90-5
Elettrodo negativo	Carbonio	10~30	7429-90-5
Base dell'elettrodo negativo	Rame	1~15	7440-44-0
Elettrolita	L'elettrolita organico prevede principalmente estere carbonato	5~25	Riservato
Alloggiamento esterno	Alluminio, ferro, plastica laminata in alluminio	1~30	7429-90-5; 7439-89-6

Component	Material name	Concentration range (wt %)	CAS number
Positive electrode	Lithium transition metal oxidate Li[M]m[O]n	20~60	12190-79-3 12057-17-9 182442-95-1
Positive electrode's base	Aluminum	1~10	7429-90-5
Negative electrode	Carbon	10~30	7429-90-5
Negative electrode's base	Copper	1~15	7440-44-0
Electrolyte	Organic electrolyte principally involves ester carbonate	5~25	Confidential
Outer case	Aluminum, iron, aluminum laminated plastic	1~30	7429-90-5; 7439-89-6

Tel: +49 (0)7151-1707-0

Fax: +49 (0)7151-1707-110

Amtsgericht Stuttgart HRA 728253

Persönlich haftender Gesellschafter: Föll GmbH

Amtsgericht Stuttgart HRB260321

E-Mail: info@rems.de

Internet: www.rems.de

Geschäftsführer:

Dr.-Ing. Christoph Föll-Laubengeiger

Dr.-Ing. Rudolf Wagner

4. Misure di pronto soccorso

First Aid Measures

Le sostanze chimiche citate al punto 3 sono inserite in un contenitore a chiusura ermetica, pertanto non possono fuoriuscire in caso di uso normale. Il pericolo di fuoriuscita sussiste solo in caso di manomissione meccanica del contenitore.

The chemicals stated in Section 3 are contained in a sealed housing so that they cannot escape during normal use. Leakage may only be caused as a result of mechanical damage to the housing.

In caso di fuoriuscita delle sostanze chimiche attenersi alle seguenti istruzioni:

If chemicals do leak, the following must be observed:

Inalazione:	I gas rilasciati possono causare irritazione delle vie respiratorie. Aerare immediatamente l'ambiente o spostarsi all'aria aperta, in casi più gravi consultare un medico.
<i>Inhalation:</i>	<i>Escaping gases may cause respiratory tract irritation. Immediately ventilate or leave the room to get into fresh air. In more serious cases, call a doctor immediately.</i>
Contatto con la pelle:	Il contenuto di una batteria aperta può causare l'insorgere di irritazioni cutanee. Sciacquare abbondantemente la zona interessata con acqua e sapone.
<i>Skin contact:</i>	<i>Skin irritations may occur. Thoroughly wash the skin with soap and water.</i>
Contatto con gli occhi:	Possono insorgere irritazioni degli occhi. Sciacquare accuratamente con acqua per 15 minuti e consultare un medico.
<i>Eye contact:</i>	<i>Eye irritations may occur. Immediately and thoroughly rinse the eyes with water for 15 minutes then seek medical assistance.</i>

5. Misure antincendio

Fire Fighting Measures

In caso di incendio:	Utilizzare solo estintori a polvere della classe antincendio D.
<i>In case of fire:</i>	<i>Only use Class D (dry powder) fire extinguishers.</i>
Attenzione:	Prima di iniziare a spegnere l'incendio, assicurarsi di essere in una zona sopravento rispetto alle fiamme per evitare di inalare i vapori tossici.
<i>Caution:</i>	<i>Before you start extinguishing the fire, be sure to go to the side of the fire from which the wind is coming. In this way, you will not inhale any toxic vapours.</i>

Tel: +49 (0)7151-1707-0

Fax: +49 (0)7151-1707-110

Amtsgericht Stuttgart HRA 728253

Persönlich haftender Gesellschafter: Föll GmbH

Amtsgericht Stuttgart HRB260321

E-Mail: info@rems.de

Internet: www.rems.de

Geschäftsführer:

Dr.-Ing. Christoph Föll-Laubengeiger

Dr.-Ing. Rudolf Wagner

6. Misure in caso di rilascio accidentale

Measures to Be Implemented in Case of Accidental Leakage

Rimuovere il liquido elettrolitico con un panno assorbente.

Leaked electrolyte fluid should be wiped up with an absorbent cloth.

In caso di rilascio rilevante indossare quanto segue:

Personal protective equipment should be worn in case of larger leakages:

- ↪ **indumenti di protezione**
protective clothing
- ↪ **maschera antigas per gas organici**
gas mask for protection against organic gases
- ↪ **occhiali di protezione**
safety goggles
- ↪ **guanti di protezione**
protective gloves

7. Manipolazione e stoccaggio

Handling and Storage

Manipolazione: Non aprire, rompere, smontare, far cadere da un'altezza elevata né saldare la batteria.

Handling: Neither open, crush nor disassemble the battery, nor let it drop from a great height nor solder anything onto it.

Carica: La temperatura di carica deve essere tra 0 °C e + 45 °C.

La batteria deve essere caricata solo con l'apposito caricabatterie.

Charging: The charging temperature must be between +32 °F and +113 °F.

Only use the charger designated for this battery.

Scarica: La batteria va scaricata a una temperatura compresa tra -20 °C e +60 °C.

Discharging: The battery may only be discharged at temperatures from -4 °F to +140 °F.

Attenzione: Un uso scorretto può causare un'esplosione o un incendio!

Caution: Improper handling may cause fire or explosion.

Stoccaggio: Temperatura: da -20 °C a +40 °C in meno di 3 mesi

Storage: Temperature: -4 °F to +104°F for less than 3 months

Umidità: dallo 0 % all'80 %

Humidity range: 0 % to 80 %

L'area di stoccaggio deve essere ben ventilata. / *Store in a well-ventilated place.*

Un cortocircuito può provocare un incendio. / *Short circuits may cause fires.*

Non conservare le batterie con altri oggetti metallici. / *Do not store along with other metal objects.*

Tel: +49 (0)7151-1707-0

Fax: +49 (0)7151-1707-110

Amtsgericht Stuttgart HRA 728253

Persönlich haftender Gesellschafter: Föll GmbH

Amtsgericht Stuttgart HRB260321

E-Mail: info@rems.de

Internet: www.rems.de

Geschäftsführer:

Dr.-Ing. Christoph Föll-Laubengeiger

Dr.-Ing. Rudolf Wagner

8. Controllo dell'esposizione e protezione personale

Monitoring of the Stored Goods and Personal Protective Equipment

Attenersi alle istruzioni riportate al punto 7. Controllare costantemente che la temperatura di stoccaggio sia entro i limiti prestabiliti. Garantire inoltre una buona ventilazione e l'umidità entro i limiti indicati. Per l'uso normale delle batterie non è necessario alcun dispositivo di protezione.

Observe the information stated in Section 7. Continuously monitor the storage temperature so as to ensure that it is within the specified limits. Apart from that, it is required to ensure good ventilation and that the humidity does not exceed the specified limits. No protective equipment is required during normal handling.

9. Proprietà fisiche e chimiche

Physical and Chemical Properties

Aspetto:	8 celle nell'alloggiamento.
<i>Appearance:</i>	<i>Housing with 8 cells.</i>
Peso:	520 g
<i>Weight:</i>	<i>520 g</i>
Proprietà chimiche:	vedere punto 3
<i>Chemical properties:</i>	<i>see Section 3</i>

10. Stabilità e reattività

Stability and Reactivity

Uno stoccaggio superiore a 12 mesi riduce la capacità e la vita utile prevista della batteria. Perdite interne degli elettroliti possono danneggiare l'alloggiamento.

Storage periods of more than 12 months will decrease the battery's capacity and expected lifespan. Electrolyte leakages may damage the housing on the inside.

11. Informazioni tossicologiche

Toxicological Information

Con uso normale, dalla batteria non ha luogo una fuoriuscita di sostanze pericolose e pertanto non si viene a contatto con sostanze tossiche.

The escape of and contact with any hazardous and toxic substances is not possible under normal conditions of use.

Tel: +49 (0)7151-1707-0
Fax: +49 (0)7151-1707-110
Amtsgericht Stuttgart HRA 728253
Persönlich haftender Gesellschafter: Föll GmbH
Amtsgericht Stuttgart HRB260321

E-Mail: info@rems.de
Internet: www.rems.de
Geschäftsführer:
Dr.-Ing. Christoph Föll-Laubengeiger
Dr.-Ing. Rudolf Wagner

12. Informazioni ecologiche

Environment-Related Information

Con uso normale della batteria è escluso l'inquinamento ambientale. Tuttavia, poiché contiene sostanze chimiche pericolose, va smaltita separatamente. Vedere punto 13.

Provided that the battery is handled properly, environmental pollution does not occur. After use, however, the battery must be disposed of separately as it contains hazardous chemicals. See Section 13.

13. Norme di smaltimento

Disposal Instructions

La batteria è un rifiuto pericoloso.

Il suo smaltimento può avvenire solo tramite un'azienda autorizzata al ritiro dei rifiuti. Non è consentito smaltirla con altri rifiuti comuni.

Batteries are classified as hazardous waste.

The battery may only be disposed of by returning it to an authorized collection point. It is prohibited to dispose of the battery with normal household waste.

14. Informazioni sul trasporto

Transportation information

Spiegazioni generali

General explanation

Per il trasporto di questo prodotto per via aerea, su strada, rotaia o via mare si applicano norme restrittive. Di seguito sono riportati i riferimenti a queste norme. Poiché la legislazione è soggetta a frequenti modifiche, il vettore deve assicurarsi che i prodotti siano trasportati in conformità alle direttive vigenti e applicabili al momento del trasporto. Se necessario, contattare il produttore per assistenza al riguardo.

Restrictive regulations are applicable to the product's transport by air, road, rail or sea. Below you will find references to these regulations. As these laws are subject to frequent changes, the transport company shall ensure that the products are transported according to the regulations applicable at the time of shipment. Please contact the manufacturer of the products if you need any assistance in this matter.

Trasporto della batteria secondo la linea guida UN 3480/3481 (1).

Si applicano le norme per le batterie con una capacità nominale di ≤ 100 Wh.

Transportation of the battery according to Directive UN 3480/3481 (1).

The regulations for batteries with nominal energy ≤ 100 Wh have to be used.

La batteria **deve essere** protetta da cortocircuito.

*The battery **must be** protected against short circuits.*

Tel: +49 (0)7151-1707-0
Fax: +49 (0)7151-1707-110
Amtsgericht Stuttgart HRA 728253
Persönlich haftender Gesellschafter: Föll GmbH
Amtsgericht Stuttgart HRB260321

E-Mail: info@rems.de
Internet: www.rems.de
Geschäftsführer:
Dr.-Ing. Christoph Föll-Laubengeiger
Dr.-Ing. Rudolf Wagner

Le norme per il trasporto dipendono dalle prescrizioni specifiche dei paesi e dalla modalità di trasporto.
The transport regulations depend on the country-specific provisions and on the type of transport.

Ogni spedizione deve contenere le seguenti etichette e note di accompagnamento:

Each package must be marked with the following labels. Furthermore, it is required to enclose an accompanying note as stated below:

Etichetta per il trasporto su strada/rotaia
Labelling for transport by road/rail



+ etichetta con l'indirizzo del mittente/destinatario
+ *Label stating the consignor and consignee*

ADR/RID/IMDG-Code: La batteria soddisfa i requisiti della Disposizione Speciale 188.
The battery meets the requirements of special provision 188.

Etichetta di spedizione/Solo aeromobili cargo CAO
Shipping label/cargo aircraft only (CAO)



+ etichetta con l'indirizzo del mittente/destinatario
+ *Label stating the consignor and consignee*

Nota di accompagnamento / *Accompanying note:* UN 3480 LITHIUM-ION BATTERIES, 9, -, (E)

Disposizione Speciale 188
special provision 188

ICAO-TI/IATA-DGR: Istruzioni per l'imballaggio 965, Teil II o Teil IB
Packing instruction 965, Part II or Part IB

Tel: +49 (0)7151-1707-0

Fax: +49 (0)7151-1707-110

Amtsgericht Stuttgart HRA 728253

Persönlich haftender Gesellschafter: Föll GmbH

Amtsgericht Stuttgart HRB260321

E-Mail: info@rems.de

Internet: www.rems.de

Geschäftsführer:

Dr.-Ing. Christoph Föll-Laubengeiger

Dr.-Ing. Rudolf Wagner

15. Direttive e regolamenti

Provisions and Regulations

Riferimenti a norme in materia di trasporto di merci pericolose:

References to provisions concerning the transport of hazardous goods:

Legge sul trasporto di merci pericolose (GGBefG)

Transportation of Dangerous Goods Act (GGBefG)

Regolamento sul trasporto di merci pericolose su gomma, su rotaia e mediante navigazione interna (GGVSEB)

Ordinance on the Transport of Dangerous Goods by Road, Rail and Inland Waterways (GGVSEB)

Regolamento sul trasporto di merci pericolose via mare (GGVSee)

Ordinance on the Transport of Dangerous Goods by Sea (GGVSee)

Legge sul traffico aereo (LuftVG), Regolamento sulle licenze aeronautiche (LuftVZO)

Air Traffic Act (LuftVG), Air Traffic Licensing Order (LuftVZO)

Accordo europeo relativo al trasporto internazionale di merci pericolose su strada (ADR)

European Agreement concerning the International Carriage of Dangerous Goods by Road (ADR)

Regolamento concernente il trasporto internazionale di merci pericolose su rotaia (RID)

Regulation concerning the International Carriage of Dangerous Goods by Rail (RID)

Accordo Internazionale per il trasporto di merci pericolose per vie di navigazione interna (ADN)

European Agreement concerning the International Carriage of Dangerous Goods by Inland Navigation (ADN)

Codice internazionale per il trasporto marittimo di merci pericolose (IMDG-Code)

International Maritime Dangerous Goods Code (IMDG-Code)

International Civil Aviation Organization –

Istruzioni tecniche per il trasporto in sicurezza delle merci pericolose per via aerea (ICAO-TI)

Technical Instructions for the Safe Transport of Dangerous Goods by Air (ICAO-TI)

International Air Transport Association –

Disposizioni per il trasporto di merci pericolose (IATA-DGR)

Dangerous Goods Regulations (IATA-DGR)

Tel: +49 (0)7151-1707-0

Fax: +49 (0)7151-1707-110

Amtsgericht Stuttgart HRA 728253

Persönlich haftender Gesellschafter: Föll GmbH

Amtsgericht Stuttgart HRB260321

E-Mail: info@rems.de

Internet: www.rems.de

Geschäftsführer:

Dr.-Ing. Christoph Föll-Laubengeiger

Dr.-Ing. Rudolf Wagner

16. Stato di carica in base alle modifiche del regolamento IATA in vigore dal 1° aprile 2016

State of Charge in Accordance with the Changes to the IATA Dangerous Goods Regulations Effective from 1 April 2016

In conformità con le modifiche della normativa IATA sulle merci pericolose in vigore dal 1° aprile 2016, REMS GmbH & Co KG conferma che dal 1° aprile 2016 tutte le batterie agli ioni di litio prodotte vengono spedite esclusivamente con uno stato di carica non superiore al 30% della propria capacità nominale di progetto.

In accordance with the changes to the IATA Dangerous Goods Regulations, which entered into force on 1 April 2016, REMS GmbH & Co KG confirms that all lithium-ion batteries (UN 3480) manufactured from 1 April 2016 will be handed over for transportation with their state of charge (SoC) not exceeding 30% of their design capacity.

17. Altre informazioni

Other Information

Le presenti informazioni sono state compilate secondo scienza e coscienza. REMS GmbH & Co KG non garantisce tuttavia l'accuratezza, l'affidabilità o la completezza delle informazioni riportate! È responsabilità dell'utente verificarne l'adeguatezza, la completezza e l'attualità in correlazione al suo uso specifico.

This information has been meticulously compiled to the best of our knowledge and belief. REMS GmbH & Co KG excludes any warranty whatsoever for the accuracy, reliability or completeness of the information provided herein! It is the user's responsibility to check the information's suitability, completeness and timeliness with regard to the relevant purpose of use.

Tel: +49 (0)7151-1707-0

Fax: +49 (0)7151-1707-110

Amtsgericht Stuttgart HRA 728253

Persönlich haftender Gesellschafter: Föll GmbH

Amtsgericht Stuttgart HRB260321

E-Mail: info@rems.de

Internet: www.rems.de

Geschäftsführer:

Dr.-Ing. Christoph Föll-Laubengeiger

Dr.-Ing. Rudolf Wagner

FICHA DE DATOS DE SEGURIDAD MATERIAL SAFETY DATA SHEET

Batería de iones de litio y óxido de manganeso
Lithium ion manganese oxide battery

N.º artículo: 571555 R14H / Item no.: 571555 R14H

Según el Reglamento (CE) nº 1907/2006 (REACH), es obligatorio poner a disposición del público una ficha de datos de seguridad únicamente en lo referente a sustancias y preparados. Las baterías no están obligadas a cumplir con los requisitos de este Reglamento.

According to Regulation (EC) No. 1907/2006 (REACH), a safety data sheet must be provided solely for substances and preparations. Batteries are not affected by the requirements of this Regulation.

1. Identificación del producto o de la mezcla y del fabricante

Product Designation and Name of the Manufacturer

Identificación: Identification	Categoría de producto: Product category	Batería de iones de litio Lithium-ion battery
	Denominación: Model name	4S2P
	Tensión: Nominal voltage	14.4V
	Capacidad nominal: Nominal capacity	5.0Ah
	Energía nominal: Nominal energy	72Wh
	Sistema químico: Chemical system	Litio-óxido de manganeso/Grafito Lithium manganese oxide / Graphite
	Recargable: Rechargeable	Sí Yes

Fabricante:
Manufacturer

Nombre y dirección:
Name and address

REMS GmbH & Co KG
Stuttgarter Straße 83
D-71332 Waiblingen

Teléfono / *phone:*

+49 (0) 7151/ 1707-0

Telefax / *fax:*

+49 (0) 7151/ 1707-110

Correo electrónico / *e-mail:*

info@rems.de

Tel: +49 (0)7151-1707-0

Fax: +49 (0)7151-1707-110

Amtsgericht Stuttgart HRA 728253

Persönlich haftender Gesellschafter: Föll GmbH

Amtsgericht Stuttgart HRB260321

E-Mail: info@rems.de

Internet: www.rems.de

Geschäftsführer:

Dr.-Ing. Christoph Föll-Laubengeiger

Dr.-Ing. Rudolf Wagner

2. Identificación de los peligros

Possible Hazards

- Clasificación:** La batería de iones de litio tiene una energía nominal de > 100 Wh, y por ello está sujeta a disposiciones especiales relativas al transporte de mercancías peligrosas.
- Classification:** *This lithium-ion battery has a nominal energy of > 100Wh, which is why it is subject to certain special provisions under the hazardous substances law.*
- Peligros:** En caso de manipulación incorrecta, las baterías de iones de litio pueden provocar incendios, explotar o provocar corrosión química. En ningún caso debe cortocircuitar, perforar, desechar en el fuego, aplastar, sumergir en agua ni forzar la descarga de las baterías, ni tampoco exponerlas a temperaturas que excedan el rango de funcionamiento del producto. Lea atentamente el manual de instrucciones. En condiciones normales no se producen filtraciones de sustancias peligrosas, por lo que no es posible entrar en contacto con sustancias tóxicas. El riesgo de exposición se produce solo en caso de una manipulación incorrecta (mecánica, térmica, eléctrica) que pueda activar la válvula de seguridad y/o causar la rotura de la carcasa. Las consecuencias incluyen el derrame del electrolito líquido, la reacción de los materiales de electrodo con humedad/agua, la descompresión de la batería, incendios o explosiones, dependiendo de las circunstancias.
- Hazards:** *When handled improperly, lithium-ion batteries may explode, or cause fire or chemical burns. Batteries must not be short-circuited, punctured, thrown into fire, crushed, immersed in water, forcibly discharged or exposed to temperatures exceeding the product's specified operating range. Please read the operating instructions thoroughly.*
The escape of and contact with any hazardous and toxic substances is not possible under normal conditions of use. A risk of exposure only exists in case of improper (mechanical, thermal, electrical) use which leads to the activation of safety valves and/or the rupture of the battery housing. Depending on the surrounding circumstances, the following might occur: electrolyte leakage, reaction of the electrode materials with moisture/water or battery venting/fire/explosion.
- Toxicidad:** Si una batería se incendia, los vapores que desprende pueden irritar los ojos, la piel y las vías respiratorias.
- Toxicity:** *If a battery burns, smoke or vapors are generated. These may cause eye, skin and respiratory tract irritations.*

Tel: +49 (0)7151-1707-0

Fax: +49 (0)7151-1707-110

Amtsgericht Stuttgart HRA 728253

Persönlich haftender Gesellschafter: Föll GmbH

Amtsgericht Stuttgart HRB260321

E-Mail: info@rems.de

Internet: www.rems.de

Geschäftsführer:

Dr.-Ing. Christoph Föll-Laubengeiger

Dr.-Ing. Rudolf Wagner

3. Composición/información sobre los componentes

Composition and Information About the Individual Components

La celda cerrada contiene los siguientes componentes:

The following components are contained in the sealed cell.

Parte	Nombre del material	Concentración (% peso)	Número CAS/CAS
Electrodo positivo	Óxido de metal de transición de litio Li[M]m[O]n	20~60	12190-79-3 12057-17-9 182442-95-1
Base del electrodo positivo	Aluminio	1~10	7429-90-5
Electrodo negativo	Carbono	10~30	7429-90-5
Base del electrodo negativo	Cobre	1~15	7440-44-0
Electrolito	Un electrolito orgánico se compone princ. de éster carbonato	5~25	Confidencial
Carcasa externa	Aluminio, hierro, plástico laminado en aluminio	1~30	7429-90-5; 7439-89-6

Component	Material name	Concentration range (wt %)	CAS number
Positive electrode	Lithium transition metal oxidate Li[M]m[O]n	20~60	12190-79-3 12057-17-9 182442-95-1
Positive electrode's base	Aluminum	1~10	7429-90-5
Negative electrode	Carbon	10~30	7429-90-5
Negative electrode's base	Copper	1~15	7440-44-0
Electrolyte	Organic electrolyte principally involves ester carbonate	5~25	Confidential
Outer case	Aluminum, iron, aluminum laminated plastic	1~30	7429-90-5; 7439-89-6

Tel: +49 (0)7151-1707-0

Fax: +49 (0)7151-1707-110

Amtsgericht Stuttgart HRA 728253

Persönlich haftender Gesellschafter: Föll GmbH

Amtsgericht Stuttgart HRB260321

E-Mail: info@rems.de

Internet: www.rems.de

Geschäftsführer:

Dr.-Ing. Christoph Föll-Laubengeiger

Dr.-Ing. Rudolf Wagner

4. Primeros auxilios

First Aid Measures

Las sustancias químicas mencionadas en la sección 3 se encuentran en una carcasa estanca, de forma que no pueden derramarse durante una manipulación normal. El riesgo de derrame solo se presenta cuando la carcasa se daña por procedimientos mecánicos.

The chemicals stated in Section 3 are contained in a sealed housing so that they cannot escape during normal use.

Leakage may only be caused as a result of mechanical damage to the housing.

Si las sustancias químicas se derraman, siga estas instrucciones:

If chemicals do leak, the following must be observed

Inhalación: Los gases que se emiten pueden provocar irritaciones de las vías respiratorias. Ventilar de inmediato o salir al aire libre; en casos más graves llamar a un médico.

Inhalation: Escaping gases may cause respiratory tract irritation. Immediately ventilate or leave the room to get into fresh air. In more serious cases, call a doctor immediately.

Contacto con la piel: Pueden producirse irritaciones cutáneas. Lavarse las manos en profundidad con agua y jabón.

Skin contact: Skin irritations may occur. Thoroughly wash the skin with soap and water.

Contacto con los ojos: Puede causar irritaciones oculares. Lavarse los ojos con abundante agua durante 15 minutos y llamar a un médico.

Eye contact: Eye irritations may occur. Immediately and thoroughly rinse the eyes with water for 15 minutes then seek medical assistance.

5. Medidas de lucha contra incendios

Fire Fighting Measures

En caso de incendio: Utilizar solo extintores de incendios de clase D (polvo seco).

In case of fire: Only use Class D (dry powder) fire extinguishers.

Advertencia: Antes de empezar a extinguir el fuego, póngase del lado del que sople el viento. Así evitará inhalar vapores tóxicos.

Caution: Before you start extinguishing the fire, be sure to go to the side of the fire from which the wind is coming. In this way, you will not inhale any toxic vapours.

Tel: +49 (0)7151-1707-0

Fax: +49 (0)7151-1707-110

Amtsgericht Stuttgart HRA 728253

Persönlich haftender Gesellschafter: Föll GmbH

Amtsgericht Stuttgart HRB260321

E-Mail: info@rems.de

Internet: www.rems.de

Geschäftsführer:

Dr.-Ing. Christoph Föll-Laubengeiger

Dr.-Ing. Rudolf Wagner

6. Medidas en caso de vertido accidental

Measures to Be Implemented in Case of Accidental Leakage

Un electrólito líquido derramado debe recogerse con un material absorbente.

Leaked electrolyte fluid should be wiped up with an absorbent cloth.

En caso de que se haya derramado gran cantidad de electrólito, póngase:

Personal protective equipment should be worn in case of larger leakages:

- ↪ Ropa de protección
protective clothing
- ↪ Máscara de gas para gases orgánicos
gas mask for protection against organic gases
- ↪ Gafas de protección
safety goggles
- ↪ Guantes
protective gloves

7. Manipulación y almacenamiento

Handling and Storage

Manipulación: No abrir, aplastar, desmenuzar, dejar caer desde gran altura, ni soldar las baterías.
Handling: *Neither open, crush nor disassemble the battery, nor let it drop from a great height nor solder anything onto it.*

Cargar: La temperatura de carga debe estar entre 0 °C y +45 °C.
La batería solo se puede cargar con su cargador correspondiente.
Charging: *The charging temperature must be between +32 °F and +113 °F.*
Only use the charger designated for this battery.

Descargar: La descarga de la batería solo debe producirse entre -20 °C y +60 °C.
Discharging: *The battery may only be discharged at temperatures from -4 °F to +140 °F.*

Advertencia: ¡Una manipulación incorrecta puede causar una explosión o provocar un incendio!
Caution: *Improper handling may cause fire or explosion!*

Almacenamiento: Temperatura: desde -20 °C hasta +40 °C en menos de 3 meses
Storage: *Temperature: -4 °F to +104°F for less than 3 months*

Humedad: 0 % a 80 %
Humidity range: 0% to 80 %

El lugar de almacenamiento debe estar bien ventilado. / *Store in a well-ventilated place.*

Un cortocircuito puede ocasionar un incendio. / *Short circuits may cause fires.*

Las baterías no deben almacenarse junto a otros objetos metálicos. / *Do not store along with other metal objects.*

Tel: +49 (0)7151-1707-0

Fax: +49 (0)7151-1707-110

Amtsgericht Stuttgart HRA 728253

Persönlich haftender Gesellschafter: Föll GmbH

Amtsgericht Stuttgart HRB260321

E-Mail: info@rems.de

Internet: www.rems.de

Geschäftsführer:

Dr.-Ing. Christoph Föll-Laubengeiger

Dr.-Ing. Rudolf Wagner

8. Controles de exposición/protección individual

Monitoring of the Stored Goods and Personal Protective Equipment

Se deben seguir las indicaciones del punto 7. La temperatura de almacenamiento debe mantenerse en todo momento dentro de los límites indicados. Además, es necesario asegurar una buena ventilación y una humedad dentro de los valores indicados. Para una manipulación normal de la batería no se requiere protección individual.

Observe the information stated in Section 7. Continuously monitor the storage temperature so as to ensure that it is within the specified limits. Apart from that, it is required to ensure good ventilation and that the humidity does not exceed the specified limits. No protective equipment is required during normal handling.

9. Propiedades físicas y químicas

Physical and Chemical Properties

Aspecto:	8 celdas en carcasa
<i>Appearance:</i>	<i>Housing with 8 cells</i>
Peso:	520 g
<i>Weight:</i>	<i>520 g</i>
Propiedades químicas:	ver sección 3
<i>Chemical properties:</i>	<i>see Section 3</i>

10. Estabilidad y reactividad

Stability and Reactivity

En caso de almacenamiento durante más de 12 meses, la capacidad de la batería se reduce y la duración de funcionamiento prevista se acorta. La carcasa puede sufrir daños desde dentro en caso de derrame del electrolito.

Storage periods of more than 12 months will decrease the battery's capacity and expected lifespan. Electrolyte leakages may damage the housing on the inside.

11. Información toxicológica

Toxicological Information

Con un manejo normal, no se producen filtraciones de sustancias peligrosas, por lo que no es posible entrar en contacto con sustancias tóxicas.

The escape of and contact with any hazardous and toxic substances is not possible under normal conditions of use.

Tel: +49 (0)7151-1707-0
Fax: +49 (0)7151-1707-110
Amtsgericht Stuttgart HRA 728253
Persönlich haftender Gesellschafter: Föll GmbH
Amtsgericht Stuttgart HRB260321

E-Mail: info@rems.de
Internet: www.rems.de
Geschäftsführer:
Dr.-Ing. Christoph Föll-Laubengeiger
Dr.-Ing. Rudolf Wagner

12. Información ecológica

Environment-Related Information

Con un manejo normal, la batería no produce daños medioambientales. Sin embargo, una vez utilizada, debe ser eliminada mediante procedimientos especiales, dado que contiene sustancias químicas peligrosas. Ver sección 13.

Provided that the battery is handled properly, environmental pollution does not occur. After use, however, the battery must be disposed of separately as it contains hazardous chemicals. See Section 13.

13. Indicaciones para la eliminación

Disposal Instructions

Las baterías son desechos especiales.

La eliminación de la batería debe seguir un sistema de recogida autorizado.

Bajo ninguna circunstancia se pueden eliminar las baterías con los desechos domésticos.

Batteries are classified as hazardous waste.

The battery may only be disposed of by returning it to an authorized collection point.

It is prohibited to dispose of the battery with normal household waste.

14. Información relativa al transporte

Transportation information

Disposición general

General explanation

Al transporte de este producto se le aplican normativas restrictivas para su transporte por aire, por carretera, por ferrocarril o por mar. A continuación encontrará indicaciones sobre estas normativas. Dado que la legislación cambia de forma habitual, el transportista debe garantizar que los productos se transportan conforme a las directivas en vigor en el momento del transporte. Si necesita ayuda, diríjase al fabricante del producto.

Restrictive regulations are applicable to the product's transport by air, road, rail or sea. Below you will find references to these regulations. As these laws are subject to frequent changes, the transport company shall ensure that the products are transported according to the regulations applicable at the time of shipment. Please contact the manufacturer of the products if you need any assistance in this matter.

Transporte de la batería conforme a la norma UN 3480/3481 (1).

Se aplicarán las normas para las baterías con una capacidad nominal de ≤ 100 Wh.

Transportation of the battery according to Directive UN 3480/3481 (1).

The regulations for batteries with nominal energy ≤ 100 Wh have to be used.

La batería **debe** llevar protección contra cortocircuitos.

*The battery **must** be protected against short circuits.*

Tel: +49 (0)7151-1707-0
Fax: +49 (0)7151-1707-110
Amtsgericht Stuttgart HRA 728253
Persönlich haftender Gesellschafter: Föll GmbH
Amtsgericht Stuttgart HRB260321

E-Mail: info@rems.de
Internet: www.rems.de
Geschäftsführer:
Dr.-Ing. Christoph Föll-Laubengeiger
Dr.-Ing. Rudolf Wagner

Las normativas sobre transportes dependen de reglamentos nacionales específicos de cada país y del medio de transporte.

The transport regulations depend on the country-specific provisions and on the type of transport.

Cada paquete debe incluir las siguientes etiquetas y nota de acompañamiento, como se muestra a continuación:

Each package must be marked with the following labels. Furthermore, it is required to enclose an accompanying note as stated below:

Etiquetado para transporte por carretera/ferrocarril y mar:

Labelling for transport by road/rail and sea



+ Etiqueta con la dirección del remitente/consignatario

+ *Label stating the consignor and consignee*

ADR/RID/IMDG-Code: La batería cumple los requisitos de la Disposición Especial 188.
The battery meets the requirements of special provision 188.

Etiqueta para el envío / solo avión de carga CAO

Shipping label/cargo aircraft only (CAO)



+ Etiqueta con la dirección del remitente/consignatario

+ *Label stating the consignor and consignee*

Nota de acompañamiento / Accompanying note: UN 3480 LITHIUM-ION BATTERIES, 9, -, (E)

Disposición Especial 188
special provision 188

ICAO-TI/IATA-DGR: Instrucciones de embalaje 965, parte II o parte IB
Packing instruction 965, Part II or Part IB

Tel: +49 (0)7151-1707-0
Fax: +49 (0)7151-1707-110
Amtsgericht Stuttgart HRA 728253
Persönlich haftender Gesellschafter: Föll GmbH
Amtsgericht Stuttgart HRB260321

E-Mail: info@rems.de
Internet: www.rems.de
Geschäftsführer:
Dr.-Ing. Christoph Föll-Laubengeiger
Dr.-Ing. Rudolf Wagner

15. Disposiciones y reglamentaciones

Provisions and Regulations

Referencias a los reglamentos relativos al transporte de mercancías peligrosas:

References to provisions concerning the transport of hazardous goods:

Ley de transporte de mercancías peligrosas (GGBefG)
Transportation of Dangerous Goods Act (GGBefG)

Reglamento de transporte de mercancías peligrosas por carretera, ferrocarril o transporte marítimo (GGVSEB)
Ordinance on the Transport of Dangerous Goods by Road, Rail and Inland Waterways (GGVSEB)

Reglamento sobre el transporte marítimo de mercancías peligrosas (GGVSee)
Ordinance on the Transport of Dangerous Goods by Sea (GGVSee)

Ley de tráfico aéreo (LuftVG), Reglamento de licencias de tráfico aéreo (LuftVZO)
Air Traffic Act (LuftVG), Air Traffic Licensing Order (LuftVZO)

Acuerdo europeo sobre el transporte internacional de mercancías peligrosas por carretera (ADR)
European Agreement concerning the International Carriage of Dangerous Goods by Road (ADR)

Reglamento internacional sobre el transporte de mercancías peligrosas por ferrocarril (RID)
Regulation concerning the International Carriage of Dangerous Goods by Rail (RID)

Acuerdo europeo sobre el transporte internacional de mercancías peligrosas por vías navegables interiores (ADN)
European Agreement concerning the International Carriage of Dangerous Goods by Inland Navigation (ADN)

Código marítimo internacional de mercancías peligrosas (IMDG)
International Maritime Dangerous Goods Code (IMDG)

International Civil Aviation Organization (ICAO-TI)
Instrucciones técnicas para el transporte sin riesgos de mercancías peligrosas por vía aérea
Technical Instructions for the Safe Transport of Dangerous Goods by Air

International Air Transport Association (IATA-DGR)
Requisitos para el transporte de mercancías peligrosas
Dangerous Goods Regulations

Tel: +49 (0)7151-1707-0

Fax: +49 (0)7151-1707-110

Amtsgericht Stuttgart HRA 728253

Persönlich haftender Gesellschafter: Föll GmbH

Amtsgericht Stuttgart HRB260321

E-Mail: info@rems.de

Internet: www.rems.de

Geschäftsführer:

Dr.-Ing. Christoph Föll-Laubengeiger

Dr.-Ing. Rudolf Wagner

16. Estado de carga de acuerdo con los cambios de la normativa IATA vigente desde el 1 de abril de 2016

State of Charge in Accordance with the Changes to the IATA Dangerous Goods Regulations Effective from 1 April 2016

De conformidad con los cambios de la normativa IATA en materia de mercancías peligrosas vigente desde el 1 de abril de 2016, REMS GmbH & Co KG confirma que a partir del 1 de abril de 2016 todas las baterías de iones de litio que se fabriquen solo se enviarán con un estado de carga que no supere el 30 % de su capacidad nominal.

In accordance with the changes to the IATA Dangerous Goods Regulations, which entered into force on 1 April 2016, REMS GmbH & Co KG confirms that all lithium-ion batteries (UN 3480) manufactured from 1 April 2016 will be handed over for transportation with their state of charge (SoC) not exceeding 30% of their design capacity.

17. Otra información

Other Information

Esta información ha sido elaborada con atención y a nuestro mejor saber y entender. REMS GmbH & Co KG excluye cualquier garantía de la exactitud, fiabilidad y exhaustividad de la información proporcionada. Es responsabilidad del usuario comprobar la adecuación, exhaustividad y vigencia de esta información según el uso al que destine la batería.

This information has been meticulously compiled to the best of our knowledge and belief. REMS GmbH & Co KG excludes any warranty whatsoever for the accuracy, reliability or completeness of the information provided herein! It is the user's responsibility to check the information's suitability, completeness and timeliness with regard to the relevant purpose of use.

Tel: +49 (0)7151-1707-0

Fax: +49 (0)7151-1707-110

Amtsgericht Stuttgart HRA 728253

Persönlich haftender Gesellschafter: Föll GmbH

Amtsgericht Stuttgart HRB260321

E-Mail: info@rems.de

Internet: www.rems.de

Geschäftsführer:

Dr.-Ing. Christoph Föll-Laubengeiger

Dr.-Ing. Rudolf Wagner

GEGEVENSBLAD PRODUCTVEILIGHEID MATERIAL SAFETY DATA SHEET

Lithium-ion mangaan accu
Lithium ion manganese oxide battery

Artikelnr.: 571555 R14H / Item no.: 571555 R14H

Volgens EG-verordening nr. 1907/2006 (REACH) behoort een veiligheidsinformatieblad uitsluitend te worden verstrekt voor stoffen en preparaten. Accu's vallen niet onder de voorschriften van deze verordening.

According to Regulation (EC) No. 1907/2006 (REACH), a safety data sheet must be provided solely for substances and preparations. Batteries are not affected by the requirements of this Regulation.

1. Identificatie van de stof en de fabrikant

Product Designation and Name of the Manufacturer

Identificatie: <i>Identification</i>	Productcategorie: <i>Product category</i>	Lithium-ion accu <i>Lithium-ion battery</i>
	Omschrijving: <i>Model name</i>	4S2P
	Nominale spanning: <i>Nominal voltage</i>	14.4V
	Nominale capaciteit: <i>Nominal capacity</i>	5.0h
	Nominaal vermogen: <i>Nominal energy</i>	72Wh
	Chemisch systeem: <i>Chemical system</i>	Lithium-mangaanoxide/grafiet <i>Lithium manganese oxide / Graphite</i>
	Oplaadbaar: <i>Rechargeable</i>	Ja <i>Yes</i>

Fabrikant: <i>Manufacturer</i>	Naam en adres: <i>Name and address</i>	Rems GmbH & Co KG Stuttgarter Straße 83 D-71332 Waiblingen
	Telefoonnummer / <i>phone:</i>	+49 (0) 7151 1707-0
	Faxnummer / <i>fax</i>	+49 (0) 7151 1707-110
	E-mail / <i>e-mail:</i>	info@rems.de

Tel: +49 (0)7151-1707-0

Fax: +49 (0)7151-1707-110

Amtsgericht Stuttgart HRA 728253

Persönlich haftender Gesellschafter: Föll GmbH

Amtsgericht Stuttgart HRB260321

E-Mail: info@rems.de

Internet: www.rems.de

Geschäftsführer:

Dr.-Ing. Christoph Föll-Laubengeiger

Dr.-Ing. Rudolf Wagner

2. Mogelijke gevaren:

Possible Hazards:

- Classificatie:** De Li-ion accu heeft een nominaal vermogen van >100Wh en valt daarom onder bijzondere bepalingen zoals die zijn opgenomen in de wetgeving betreffende gevaarlijke stoffen.
- Classification:** *This lithium-ion battery has a nominal energy of > 100Wh, which is why it is subject to certain special provisions under the hazardous substances law.*
- Gevaren:** Lithium-ion accu's kunnen bij ondeskundig gebruik ontvlammen, exploderen of chemische brandwonden veroorzaken. De accu in geen geval kortsluiten, openen, in het vuur gooien, pletten, in water onderdompelen, gedwongen ontladen of blootstellen aan temperaturen die buiten het opgegeven bereik van het product liggen. Lees zorgvuldig de gebruiksaanwijzing. Onder normale omstandigheden komen er geen gevaarlijke stoffen vrij en is er geen gevaar voor contact met giftige stoffen. Het risico van blootstelling treedt alleen op bij ondeskundig gebruik (mechanisch, thermisch, elektrisch) dat leidt tot activering van de veiligheidskleppen en/of beschadiging en openbreken van de behuizing. Naar gelang de omstandigheden, kunnen dan de volgende gevaren optreden: weglekken van de elektrolytvloeistof, reageren van de elektrodematerialen met vocht of water, ontluchting van de accu, brand of een explosie.
- Hazards:** *When handled improperly, lithium-ion batteries may explode, or cause fire or chemical burns. Batteries must not be short-circuited, punctured, thrown into fire, crushed, immersed in water, forcibly discharged or exposed to temperatures exceeding the product's specified operating range. Please read the operating instructions thoroughly.*
The escape of and contact with any hazardous and toxic substances is not possible under normal conditions of use. A risk of exposure only exists in case of improper (mechanical, thermal, electrical) use which leads to the activation of safety valves and/or the rupture of the battery housing. Depending on the surrounding circumstances, the following might occur: electrolyte leakage, reaction of the electrode materials with moisture/water or battery venting/fire/explosion.
- Toxiciteit:** Door een brandende accu kunnen, als gevolg van de rookontwikkeling, irritaties optreden aan ogen, huid en luchtwegen.
- Toxicity:** *If a battery burns, smoke or vapors are generated. These may cause eye, skin and respiratory tract irritations.*

Tel: +49 (0)7151-1707-0

Fax: +49 (0)7151-1707-110

Amtsgericht Stuttgart HRA 728253

Persönlich haftender Gesellschafter: Föll GmbH

Amtsgericht Stuttgart HRB260321

E-Mail: info@rems.de

Internet: www.rems.de

Geschäftsführer:

Dr.-Ing. Christoph Föll-Laubengeiger

Dr.-Ing. Rudolf Wagner

3. Samenstelling en informatie over de bestanddelen

Composition and Information About the Individual Components

De gesloten cel bevat de volgende componenten.

The following components are contained in the sealed cell.

Onderdeel	Materiaal	Concentratiebereik (wt %)	CAS-Nummer
Positieve electrode	Lithiumtransitie metaaloxidaat Li[M]m[O]n	20~60	12190-79-3 12057-17-9 182442-95-1
Positieve-electrodehouder	Aluminium	1~10	7429-90-5
Negatieve electrode	Koolstof	10~30	7429-90-5
Negatieve-electrodehouder	Koper	1~15	7440-44-0
Electrolyt	Organische electrolyt bevat voornamelijk estercarbonaat	5~25	Vertrouwelijk
Buitenste omhulsel	Aluminium, ijzer, plastic met aluminiumlaminaat	1~30	7429-90-5; 7439-89-6

Component	Material name	Concentration range (wt %)	CAS number
Positive electrode	Lithium transition metal oxidate Li[M]m[O]n	20~60	12190-79-3 12057-17-9 182442-95-1
Positive electrode's base	Aluminium	1~10	7429-90-5
Negative electrode	Carbon	10~30	7429-90-5
Negative electrode's base	Copper	1~15	7440-44-0
Electrolyte	Organic electrolyte principally involves ester carbonate	5~25	Confidential
Outer case	Aluminum, iron, aluminum laminated plastic	1~30	7429-90-5; 7439-89-6

Tel: +49 (0)7151-1707-0

Fax: +49 (0)7151-1707-110

Amtsgericht Stuttgart HRA 728253

Persönlich haftender Gesellschafter: Föll GmbH

Amtsgericht Stuttgart HRB260321

E-Mail: info@rems.de

Internet: www.rems.de

Geschäftsführer:

Dr.-Ing. Christoph Föll-Laubengeiger

Dr.-Ing. Rudolf Wagner

4. Eerstehulpmaatregelen

First Aid Measures

De onder punt 3 opgenomen chemische stoffen bevinden zich in een verzegelde behuizing, zodat ze bij normaal gebruik niet kunnen ontsnappen. Het risico op lekkage bestaat alleen bij mechanische beschadiging van de behuizing. *The chemicals stated in Section 3 are contained in a sealed housing so that they cannot escape during normal use. Leakage may only be caused as a result of mechanical damage to the housing.*

Mochten chemicaliën weglekken, dan moet met het volgende rekening worden gehouden:
If chemicals do leak, the following must be observed

- Inademen:** Ontsnapte gassen kunnen aandoeningen aan de luchtwegen veroorzaken. Onmiddellijk de ruimte ventileren of frisse lucht opzoeken. Bij ernstige gevolgen onmiddellijk een arts waarschuwen.
- Inhalation:* *Escaping gases may cause respiratory tract irritation. Immediately ventilate or leave the room to get into fresh air. In more serious cases, call a doctor immediately.*
- Contact met de huid:** Er kunnen huidirritatie optreden. Was de huid grondig met water en zeep.
- Skin contact:* *Skin irritations may occur. Thoroughly wash the skin with soap and water.*
- Contact met de ogen:** Er kunnen irritaties aan de ogen optreden. Spoel de ogen gedurende 15 minuten goed met water en raadpleeg een arts.
- Eye contact:* *Eye irritations may occur. Immediately and thoroughly rinse the eyes with water for 15 minutes then seek medical assistance.*

5. Brandbestrijdingsmaatregelen

Fire Fighting Measures

- In het geval van brand:** Gebruik alleen brandblusser van brandklasse D (droog poeder).
- In case of fire:* *Only use Class D (dry powder) fire extinguishers.*
- Let op:** Zorg dat u, voordat u begint met het blussen van de brand, aan de kant van het vuur staat van waaruit de wind komt. Daardoor zorgt u ervoor dat u geen giftige dampen inademt.
- Caution:* *Before you start extinguishing the fire, be sure to go to the side of the fire from which the wind is coming. In this way, you will not inhale any toxic vapours.*

Tel: +49 (0)7151-1707-0

Fax: +49 (0)7151-1707-110

Amtsgericht Stuttgart HRA 728253

Persönlich haftender Gesellschafter: Föll GmbH

Amtsgericht Stuttgart HRB260321

E-Mail: info@rems.de

Internet: www.rems.de

Geschäftsführer:

Dr.-Ing. Christoph Föll-Laubengeiger

Dr.-Ing. Rudolf Wagner

6. Maatregelen bij accidenteel vrijkomen





Measures to Be Implemented in Case of Accidental Leakage

Lekkende elektrolyt-vloeistof moet met een absorberende doek worden afgeveegd.

Leaked electrolyte fluid should be wiped up with an absorbent cloth.

Bij grootschalige lekkage moet beschermende kleding worden gedragen:

Personal protective equipment should be worn in case of larger leakages:

-  **beschermende kleding**
protective clothing
-  **gasmasker ter bescherming tegen organische gassen**
gas mask for protection against organic gases
-  **veiligheidsbril**
safety goggles
-  **veiligheidshandschoenen**
protective gloves

7. Gebruik en opslag

Handling and Storage

- Behandeling:** De accu niet openen, beschadigen of pletten, uit elkaar halen, van grote hoogte laten vallen of er iets aan vast solderen.
- Handling:* *Neither open, crush nor disassemble the battery, nor let it drop from a great height nor solder anything onto it.*
- Opladen:** De temperatuur tijdens het opladen moet tussen 0° C en 45° C liggen.
De accu mag alleen met de juiste lader worden opgeladen.
- Charging:* *The charging temperature must be between +32 °F and +113 °F.*
Only use the charger designated for this battery.
- Ontladen:** Ontladen van de accu mag alleen bij een temperatuur tussen -20° C en 60° C.
- Discharging:* *The battery may only be discharged at temperatures from -4 °F to +140 °F.*
- Let op:** Verkeerd gebruik kan leiden tot een explosie of het ontstaan van brand!
- Caution:* *Improper handling may cause fire or explosion!*
- Opslag:** Temperatuur: -20 °C tot +40 °C voor minder dan 3 maanden
- Storage:* *Temperature: -4 °F to +104°F, for less than 3 months*
- Luchtvochtigheid: 0% tot 80%
- Humidity range: 0 % to 80 %*
- De opslagruimte moet goed geventileerd zijn / *Store in a well-ventilated place.*
Kortsluiting kan brand veroorzaken. / *Short circuits may cause fires.*
De accu's mogen niet samen met andere metalen voorwerpen worden opgeslagen. / *Do not store along with other metal objects.*

Tel: +49 (0)7151-1707-0

Fax: +49 (0)7151-1707-110

Amtsgericht Stuttgart HRA 728253

Persönlich haftender Gesellschafter: Föll GmbH

Amtsgericht Stuttgart HRB260321

E-Mail: info@rems.de

Internet: www.rems.de

Geschäftsführer:

Dr.-Ing. Christoph Föll-Laubengeiger

Dr.-Ing. Rudolf Wagner

8. Toezicht op de opgeslagen goederen en persoonlijke beschermingsmiddelen

Monitoring of the Stored Goods and Personal Protective Equipment

De aanwijzingen onder punt 7 moeten worden nageleefd. Handhaving van de opslagtemperatuur binnen de aangegeven grenzen moet continu worden gecontroleerd. Ook moet worden gezorgd voor goede ventilatie en luchtvochtigheid binnen de aangegeven grenzen. Bij normaal gebruik van de accu's zijn geen persoonlijke beschermingsmiddelen vereist.

Observe the information stated in Section 7. Continuously monitor the storage temperature so as to ensure that it is within the specified limits. Apart from that, it is required to ensure good ventilation and that the humidity does not exceed the specified limits. No protective equipment is required during normal handling.

9. Fysische en chemische eigenschappen

Physical and Chemical Properties

Uiterlijk: 8 cellen in een behuizing
Appearance: Housing with 8 cells

Gewicht: 520 g
Weight: 520 g

Chemische eigenschappen: zie punt 3
Chemical properties: see Section 3

10. Stabiliteit en reactiviteit

Stability and Reactivity

Een opslagtermijn langer dan 12 maanden vermindert de capaciteit van de accu en verkort de verwachte levensduur. De behuizing kan door lekkende elektrolyt van binnenuit beschadigd raken.

Storage periods of more than 12 months will decrease the battery's capacity and expected lifespan. Electrolyte leakages may damage the housing on the inside.

11. Toxicologische informatie

Toxicological Information

Bij normaal gebruik zullen er geen gevaarlijke stoffen uit de accu komen en kan er dus geen sprake zijn van contact met giftige stoffen.

The escape of and contact with any hazardous and toxic substances is not possible under normal conditions of use.

Tel: +49 (0)7151-1707-0

Fax: +49 (0)7151-1707-110

Amtsgericht Stuttgart HRA 728253

Persönlich haftender Gesellschafter: Föll GmbH

Amtsgericht Stuttgart HRB260321

E-Mail: info@rems.de

Internet: www.rems.de

Geschäftsführer:

Dr.-Ing. Christoph Föll-Laubengeiger

Dr.-Ing. Rudolf Wagner

12. Milieu-informatie

Environment-Related Information

Bij normaal gebruik levert de accu geen milieuschade op. Na gebruik moet hij echter apart worden verwijderd, omdat hij gevaarlijke chemicaliën bevat. Zie punt 13.

Provided that the battery is handled properly, environmental pollution does not occur. After use, however, the battery must be disposed of separately as it contains hazardous chemicals. See Section 13.

13. Richtlijnen voor verwijdering

Disposal Instructions

Een accu is gevaarlijk afval.

Het afvoeren van de accu mag uitsluitend via een goedgekeurd recyclingsysteem.

De accu mag in geen geval met het restafval worden afgevoerd.

Batteries are classified as hazardous waste.

The battery may only be disposed of by returning it to an authorized collection point.

It is prohibited to dispose of the battery with normal household waste.

14. Informatie over het transport

Transportation information

Algemene uitleg

General explanation

Voor verzending van dit product per vliegtuig, auto, trein of boot gelden belangrijke restrictieve voorschriften. Aanwijzingen over deze regelingen vindt u hieronder. Omdat de wetgeving regelmatig verandert, moet de transporteur ervoor zorgen dat de producten steeds vervoerd worden in overeenstemming met de meest actuele, geldige richtlijnen. Heeft u hulp nodig met betrekking tot deze aangelegenheid, neemt u dan contact op met de fabrikant van de producten.

Restrictive regulations are applicable to the product's transport by air, road, rail or sea.

Below you will find references to these regulations. As these laws are subject to frequent changes, the transport company shall ensure that the products are transported according to the regulations applicable at the time of shipment. Please contact the manufacturer of the products if you need any assistance in this matter.

Transport van de batterij volgens richtlijn UN 3480/3481 (1).

De voorschriften voor batterijen met een nominaal vermogen van ≤ 100 Wh dienen worden toegepast.

Transportation of the battery according to Directive UN 3480/3481 (1).

The regulations for batteries with nominal energy ≤ 100 Wh have to be used.

De accu **moet** worden beschermd tegen kortsluiting.

*The battery **must** be protected against short circuits.*

Tel: +49 (0)7151-1707-0
Fax: +49 (0)7151-1707-110
Amtsgericht Stuttgart HRA 728253
Persönlich haftender Gesellschafter: Föll GmbH
Amtsgericht Stuttgart HRB260321

E-Mail: info@rems.de
Internet: www.rems.de
Geschäftsführer:
Dr.-Ing. Christoph Föll-Laubengeiger
Dr.-Ing. Rudolf Wagner

De transportvoorschriften zijn gebaseerd op de voor het betreffende land geldende voorschriften en de wijze waarop de accu vervoerd wordt.

The transport regulations depend on the country-specific provisions and on the type of transport.

Elke pakstuk moet met de volgende labels gekenmerkt zijn en er moet over een begeleidend document beschikken, zoals beneden aangegeven:

Each package must be marked with the following labels. Furthermore, it is required to enclose an accompanying note as stated below

Label voor transport op weg/sport en zee

Labelling for transport by road/rail and sea



- + Label met afzender en ontvanger
- + Label stating the consignor and consignee

ADR/RID/IMDG-Code: De batterij voldoet aan de eisen van Bijzondere Bepaling nr. 188.
The battery meets the requirements of special provision 188.

Label voor verzending / luchtvracht CAO

Shipping label/cargo aircraft only (CAO)



- + Label met afzender en ontvanger
- + Label stating the consignor and consignee

Dekblad / *Accompanying note:* UN 3480 LITHIUM-ION BATTERIES, 9, -, (E)

Bijzondere Bepaling nr. 188
special provision 188

ICAO-TI/IATA-DGR: Verpakkingsvoorschriften 965, deel II of deel IB
Packing instruction 965, Part II or Part IB

Tel: +49 (0)7151-1707-0
Fax: +49 (0)7151-1707-110
Amtsgericht Stuttgart HRA 728253
Persönlich haftender Gesellschafter: Föll GmbH
Amtsgericht Stuttgart HRB260321

E-Mail: info@rems.de
Internet: www.rems.de
Geschäftsführer:
Dr.-Ing. Christoph Föll-Laubengeiger
Dr.-Ing. Rudolf Wagner

15. Voorschriften en regelingen

Provisions and Regulations

Verwijzingen naar voorschriften voor het transport van gevaarlijke goederen:

References to provisions concerning the transport of hazardous goods:

Wet inzake het transport van gevaarlijke goederen (GGBefG)
Transportation of Dangerous Goods Act (GGBefG)

Verordening inzake gevaarlijke goederen weg, spoor en binnenscheepvaart (GGVSEB)
Ordinance on the Transport of Dangerous Goods by Road, Rail and Inland Waterways (GGVSEB)

Verordening inzake gevaarlijke goederen zee (GGVSee)
Ordinance on the Transport of Dangerous Goods by Sea (GGVSee)

Wet inzake luchtverkeer (LuftVG), toelatingsreglement voor luchtverkeer (LuftVZO)
Air Traffic Act (LuftVG), Air Traffic Licensing Order (LuftVZO)

Europese overeenkomst over het internationale transport van gevaarlijke goederen op de weg (ADR)
European Agreement concerning the International Carriage of Dangerous Goods by Road (ADR)

Regulering voor het internationale spoorwegtransport van gevaarlijke goederen (RID)
Regulation concerning the International Carriage of Dangerous Goods by Rail (RID)

Europese overeenkomst over het transport van gevaarlijke goederen op binnenwaterwegen (ADN)
European Agreement concerning the International Carriage of Dangerous Goods by Inland Navigation (ADN)

Internationale code voor het transport van gevaarlijke stoffen met zeeschepen (IMDG-Code)
International Maritime Dangerous Goods Code (IMDG-Code)

International Civil Aviation Organization -
Technische voorschriften voor het transport van gevaarlijke goederen in het luchtverkeer (ICAO-TI)
Technical Instructions for the Safe Transport of Dangerous Goods by Air (ICAO-TI)

International Air Transport Association -
Voorschriften voor het transport van gevaarlijke goederen (IATA-DGR)
Dangerous Goods Regulations (IATA-DGR)

Tel: +49 (0)7151-1707-0

Fax: +49 (0)7151-1707-110

Amtsgericht Stuttgart HRA 728253

Persönlich haftender Gesellschafter: Föll GmbH

Amtsgericht Stuttgart HRB260321

E-Mail: info@rems.de

Internet: www.rems.de

Geschäftsführer:

Dr.-Ing. Christoph Föll-Laubengeiger

Dr.-Ing. Rudolf Wagner

16. Laadstatus volgens verandering van de IATA-voorschriften voor gevaarlijke goederen vanaf 1 april 2016

State of Charge in Accordance with the Changes to the IATA Dangerous Goods Regulations Effective from 1 April 2016

Overeenkomstig de verandering van de IATA-voorschriften voor gevaarlijke goederen, die vanaf 1 april 2016 geldig zijn, bevestigt de firma REMS GmbH & Co KG, dat de vanaf 1 april 2016 geproduceerde lithium-ionen-accu's (UN 3480), met een laadstatus (SoC) van max. 30% van hun ontwerpcapaciteit ter transport worden overhandigd.

In accordance with the changes to the IATA Dangerous Goods Regulations, which entered into force on 1 April 2016, REMS GmbH & Co KG confirms that all lithium-ion batteries (UN 3480) manufactured from 1 April 2016 will be handed over for transportation with their state of charge (SoC) not exceeding 30% of their design capacity.

17. Overige informatie

Other Information

Deze informatie is naar eer en geweten zorgvuldig samengesteld. REMS GmbH & Co KG wijst evenwel alle aansprakelijkheid af op het gebied van nauwkeurigheid, betrouwbaarheid en volledigheid van genoemde informatie! Het is de verantwoordelijkheid van de gebruiker om de informatie, met het oog op het betreffende gebruiksdoel, te controleren op juistheid, volledigheid en actualiteit.

This information has been meticulously compiled to the best of our knowledge and belief. REMS GmbH & Co KG excludes any warranty whatsoever for the accuracy, reliability or completeness of the information provided herein! It is the user's responsibility to check the information's suitability, completeness and timeliness with regard to the relevant purpose of use.

Tel: +49 (0)7151-1707-0

Fax: +49 (0)7151-1707-110

Amtsgericht Stuttgart HRA 728253

Persönlich haftender Gesellschafter: Föll GmbH

Amtsgericht Stuttgart HRB260321

E-Mail: info@rems.de

Internet: www.rems.de

Geschäftsführer:

Dr.-Ing. Christoph Föll-Laubengeiger

Dr.-Ing. Rudolf Wagner

PRODUKTSÄKERHETS DATABLAD MATERIAL SAFETY DATA SHEET

Litiumjon-manganoxid-batteri
Lithium ion manganese oxide battery

Artikelnr: 571555 R14H / Item no.: 571555 R14H

Enligt förordning (EG) nr 1907/2006 (REACH) behöver endast säkerhetsdatablad tillhandahållas för ämnen och preparat. Batterier påverkas inte av kraven i denna förordning.

According to Regulation (EC) No. 1907/2006 (REACH), a safety data sheet must be provided solely for substances and preparations. Batteries are not affected by the requirements of this Regulation

1. Namnet på ämnet och tillverkaren

Product Designation and Name of the Manufacturer

Identifikation: <i>Identification:</i>	Produktkategori: <i>Product category</i>	Litiumjonbatteri <i>Lithium-ion battery</i>
	Modellnamn: <i>Model name</i>	4S2P
	Nominell spänning: <i>Nominal voltage</i>	14.4V
	Nominell kapacitet: <i>Nominal capacity</i>	5.0Ah
	Nominell energi: <i>Nominal energy</i>	72Wh
	Kemiskt system: <i>Chemical system</i>	Litium mangandioxid / grafit <i>Lithium manganese oxide / Graphite</i>
	Uppladdningsbart: <i>Rechargeable</i>	Ja <i>Yes</i>

Tillverkare: <i>Manufacturer:</i>	Namn och adress: <i>Name and address</i>	REMS GmbH & Co KG Stuttgarter Straße 83 D-71332 Waiblingen
	Telefon / <i>phone:</i>	+49 (0) 7151-1707-0
	Fax / <i>fax:</i>	+49 (0) 7151-1707-110
	E-post / <i>e-mail:</i>	info@rems.de

Tel: +49 (0)7151-1707-0

Fax: +49 (0)7151-1707-110

Amtsgericht Stuttgart HRA 728253

Persönlich haftender Gesellschafter: Föll GmbH

Amtsgericht Stuttgart HRB260321

E-Mail: info@rems.de

Internet: www.rems.de

Geschäftsführer:

Dr.-Ing. Christoph Föll-Laubengeiger

Dr.-Ing. Rudolf Wagner

2. Faroidentifizierung

Possible Hazards

Klassificering: Detta uppladdningsbara litiumjonbatteri har en nominell energi på > 100Wh. För batteriet finns särskilda bestämmelser i de olika transportförordningarna.

Classification: *This lithium-ion battery has a nominal energy of > 100Wh, which is why it is subject to certain special provisions under the hazardous substances law.*

Faror: Litiumjonbatterier kan förorsaka brand, explosion eller kemiska brännskador om de behandlas fel. Förorsaka aldrig kortslutning, punktera, bränn eller krossa aldrig ett batteri, sänk aldrig ned ett batteri i vatten och utsätt det inte för temperaturer över den angivna brukstemperaturen. Läs instruktionerna omsorgsfullt. Vid normal användning befinner sig kemikalierna och metallerna inuti en förseglad behållare och kommer inte i kontakt med utsidan. Risk för exponering uppstår endast vid missbruk (mekaniskt, termiskt, elektriskt) som leder till att säkerhetsventiler aktiveras och/eller sprickor i batterihöljet uppstår. Detta kan, beroende på omständigheterna, leda till läckage av elektrolyt, att elektrodmaterial reagerar i kontakt med fukt/vatten eller att batteriet luftas.

Hazards: *When handled improperly, lithium-ion batteries may explode, or cause fire or chemical burns. Batteries must not be short-circuited, punctured, thrown into fire, crushed, immersed in water, forcibly discharged or exposed to temperatures exceeding the product's specified operating range. Please read the operating instructions thoroughly. The escape of and contact with any hazardous and toxic substances is not possible under normal conditions of use. A risk of exposure only exists in case of improper (mechanical, thermal, electrical) use which leads to the activation of safety valves and/or the rupture of the battery housing. Depending on the surrounding circumstances, the following might occur: electrolyte leakage, reaction of the electrode materials with moisture/water or battery venting/fire/explosion.*

Toxicitet: Om ett batteri brinner, kan rök och ångor irritera ögon, hud och luftvägar.

Toxicity: *If a battery burns, smoke or vapors are generated. These may cause eye, skin and respiratory tract irritations.*

Tel: +49 (0)7151-1707-0

Fax: +49 (0)7151-1707-110

Amtsgericht Stuttgart HRA 728253

Persönlich haftender Gesellschafter: Föll GmbH

Amtsgericht Stuttgart HRB260321

E-Mail: info@rems.de

Internet: www.rems.de

Geschäftsführer:

Dr.-Ing. Christoph Föll-Laubengeiger

Dr.-Ing. Rudolf Wagner

3. Sammansättning och information om beståndsdelar

Composition and Information About the Individual Components

Batteriet har följande beståndsdelar:

The following components are contained in the sealed cell:

Del	Materialnamn	Koncentration viktprocent	CAS-Nummer
Positiv elektrod	Litiumövergång Metalloxidering Li[M]m[O]n	20~60	12190-79-3 12057-17-9 182442-95-1
Positiv elektrod bas	Aluminum	1~10	7429-90-5
Negativ elektrod	Kol	10~30	7429-90-5
Negativ elektro bas	Koppar	1~15	7440-44-0
Elektrolyt	Organisk elektrolyt innehåller i princip karbonat ester	5~25	Konfidentiellt
Yttre hölje	Aluminum, järn, aluminiumbelagd plast	1~30	7429-90-5; 7439-89-6

Component	Material name	Concentration range (wt %)	CAS number
Positive electrode	Lithium transition metal oxidate Li[M]m[O]n	20~60	12190-79-3 12057-17-9 182442-95-1
Positive electrode's base	Aluminum	1~10	7429-90-5
Negative electrode	Carbon	10~30	7429-90-5
Negative electrode's base	Copper	1~15	7440-44-0
Electrolyte	Organic electrolyte principally involves ester carbo- nate	5~25	Confidential
Outer case	Aluminum, iron, aluminum laminated plastic	1~30	7429-90-5; 7439-89-6

Tel: +49 (0)7151-1707-0

Fax: +49 (0)7151-1707-110

Amtsgericht Stuttgart HRA 728253

Persönlich haftender Gesellschafter: Föll GmbH

Amtsgericht Stuttgart HRB260321

E-Mail: info@rems.de

Internet: www.rems.de

Geschäftsführer:

Dr.-Ing. Christoph Föll-Laubengeiger

Dr.-Ing. Rudolf Wagner

4. Åtgärder vid första hjälpen

First Aid Measures

Kemikalierna som anges i tabellen befinner sig i slutna behållare. Vid normal användning uppstår risk för exponering endast om batteriet misshandlas mekaniskt.

The chemicals are contained in a sealed housing so that they cannot escape during normal use.

Leakage may only be caused as a result of mechanical damage to the housing.

Om kemikalier läcker ut, följ dessa instruktioner:

If chemicals do leak, the following must be observed:

Inandning:	Innehållet i ett öppnat batteri kan förorsaka irritation i luftvägarna. Sörj för frisk luft och kontakta läkare.
<i>Inhalation:</i>	<i>Escaping gases may cause respiratory tract irritation. Immediately ventilate or leave the room to get into fresh air. In more serious cases, call a doctor immediately.</i>
Hudkontakt:	Innehållet i ett öppnat batteri kan förorsaka hudirritation. Tvätta med två och vatten.
<i>Skin contact:</i>	<i>Skin irritations may occur. Thoroughly wash the skin with soap and water.</i>
Ögonkontakt:	Innehållet i ett öppnat batteri kan förorsaka ögonirritation. Skölj omedelbart ögonen rikligt med vatten under 15 minuter och uppsök läkare.
<i>Eye contact:</i>	<i>Eye irritations may occur. Immediately and thoroughly rinse the eyes with water for 15 minutes then seek medical assistance.</i>

5. Brandbekämpningsåtgärder

Fire Fighting Measures

Vid brand:	Använd endast torra kemiska brandsläckare (torrpulver).
<i>In case of fire:</i>	<i>Only use Class D (dry powder) fire extinguishers.</i>
Observera:	Innan du börjar att släcka elden, se till att du har vinden mot dig. På så sätt andas du inte in några giftiga ångor.
<i>Caution:</i>	<i>Before you start extinguishing the fire, be sure to go to the side of the fire from which the wind is coming. In this way, you will not inhale any toxic vapours.</i>

Tel: +49 (0)7151-1707-0

Fax: +49 (0)7151-1707-110

Amtsgericht Stuttgart HRA 728253

Persönlich haftender Gesellschafter: Föll GmbH

Amtsgericht Stuttgart HRB260321

E-Mail: info@rems.de

Internet: www.rems.de

Geschäftsführer:

Dr.-Ing. Christoph Föll-Laubengeiger

Dr.-Ing. Rudolf Wagner

6. Åtgärder vid oavsiktliga utsläpp

Measures to Be Implemented in Case of Accidental Leakage

Torka upp utspilld elektrolytvätska med en absorberande trasa.

Leaked electrolyte fluid should be wiped up with an absorbent cloth.

Om en stor mängd elektrolyt har läckt ut, använd:

Personal protective equipment should be worn in case of larger leakages:

- ☞ Skyddskläder
protective clothing
- ☞ Gasmask för organiska gaser
gas mask for protection against organic gases
- ☞ Skyddsglasögon
safety goggles
- ☞ Skyddshandskar
protective gloves

7. Hantering och förvaring

Handling and Storage

Hantering: Öppna inte batteriet. Batteriet får inte krossas, monteras isär, tappas i marken eller lödas ihop med något.

Handling: *Neither open, crush nor disassemble the battery, nor let it drop from a great height nor solder anything onto it.*

Laddning: Laddningstemperaturen måste ligga mellan 0 °C och +45 °C. Batteriet får endast laddas med en laddare som är specialkonstruerad för detta batteri.

Charging: *The charging temperature must be between +32 °F and +113 °F. Only use the charger designated for this battery.*

Urladdning: Batteriet får endast laddas ur vid temperaturer mellan -20 °C och +60 °C.

Discharging: *The battery may only be discharged at temperatures from -4 °F to +140 °F.*

Observera: Fel hantering kan leda till eldsvåda eller explosion!

Caution: *Improper handling may cause fire or explosion!*

Förvaring: Temperatur: -20 °C till +40 °C under mindre än 3 månader

Storage: *Temperature: -4 °F to +104 °F, for less than 3 months*

Luftfuktighet: 0 % - 80 %

Humidity range: 0 % to 80 %

Förvaringsutrymmet måste ha god ventilation. / *Store in a well-ventilated place.*

Kortslutning kan leda till eldsvåda. / *Short circuits may cause fires.*

Förvaras inte tillsammans med föremål av metall. / *Do not store along with other metal objects.*

Tel: +49 (0)7151-1707-0

Fax: +49 (0)7151-1707-110

Amtsgericht Stuttgart HRA 728253

Persönlich haftender Gesellschafter: Föll GmbH

Amtsgericht Stuttgart HRB260321

E-Mail: info@rems.de

Internet: www.rems.de

Geschäftsführer:

Dr.-Ing. Christoph Föll-Laubengeiger

Dr.-Ing. Rudolf Wagner

8. Exponeringskontroll och personligt skydd

Monitoring of the Stored Goods and Personal Protective Equipment

Råden som ges i punkt 7 måste efterföljas. Se till att förvaringstemperaturen alltid ligger inom gränserna. Sörj även för god ventilation och se till att fuktigheten håller sig inom gränserna. Vid normal användning behövs ingen skyddsutrustning.

Observe the information stated in Section 7. Continuously monitor the storage temperature so as to ensure that it is within the specified limits. Apart from that, it is required to ensure good ventilation and that the humidity does not exceed the specified limits. No protective equipment is required during normal handling.

9. Fysiska och kemiska egenskaper

Physical and Chemical Properties

Utseende:	8 celler i ett hölje
<i>Appearance:</i>	<i>Housing with 8 cells</i>
Vikt:	520 g
<i>Weight:</i>	<i>520 g</i>
Kemiska egenskaper:	Se punkt 3
<i>Chemical properties:</i>	<i>see Section 3</i>

10. Stabilitet och reaktivitet

Stability and Reactivity

Om batteriet lagras över 12 månader kommer dess kapacitet att minska och livslängden bli kortare. Om elektrolyt skulle läcka ut kan höljet av plast skadas.

Storage periods of more than 12 months will decrease the battery's capacity and expected lifespan. Electrolyte leakages may damage the housing on the inside.

11. Toxikologisk information

Toxicological Information

Vid normal användning kommer inget läckage att uppträda, och därför uppstår inte heller någon kontakt med batteriets giftiga beståndsdelar.

The escape of and contact with any hazardous and toxic substances is not possible under normal conditions of use.

Tel: +49 (0)7151-1707-0

Fax: +49 (0)7151-1707-110

Amtsgericht Stuttgart HRA 728253

Persönlich haftender Gesellschafter: Föll GmbH

Amtsgericht Stuttgart HRB260321

E-Mail: info@rems.de

Internet: www.rems.de

Geschäftsführer:

Dr.-Ing. Christoph Föll-Laubengeiger

Dr.-Ing. Rudolf Wagner

12. Ekologisk information

Environment-Related Information

Vid normal användning av batteriet förekommer inga miljöföroreningar. Batteriet innehåller dock kemikalier som kan skada miljön. Följ därför instruktionerna som beskrivs under punkt 13 när batteriet ska kasseras.

Provided that the battery is handled properly, environmental pollution does not occur. After use, however, the battery must be disposed of separately as it contains hazardous chemicals. See Section 13.

13. Avfallshantering

Disposal Instructions

Batterier är farligt avfall.

De får inte kastas i hushållssoporna.

Om batteriet är oanvändbart, kassera det enligt gällande föreskrifter för återvinning.

Batteries are classified as hazardous waste.

The battery may only be disposed of by returning it to an authorized collection point.

It is prohibited to dispose of the battery with normal household waste.

14. Transportinformation

Transportation information

Allmän förklaring:

General explanation

För transporten av dessa produkter med flyg, vägtransport, järnväg eller båt gäller begränsande bestämmelser.

Hänvisningar till dessa bestämmelser finns nedan. Eftersom lagstiftningen ofta ändras, är det upp till transportören att se till att varorna transporteras enligt den lagstiftning som är giltig och tillämpbar vid tidpunkten för transporten. Om så behövs, ta kontakt med tillverkaren för råd.

Restrictive regulations are applicable to the product's transport by air, road, rail or sea. Below you will find references to these regulations. As these laws are subject to frequent changes, the transport company shall ensure that the products are transported according to the regulations applicable at the time of shipment. Please contact the manufacturer of the products if you need any assistance in this matter.

Transport av batteriet enligt riktlinje UN 3480/3481 (1).

Reglerna för batterier med en nominell kapacitet av ≤ 100 Wh ska tillämpas.

Transportation of the battery according to Directive UN 3480/3481 (1).

The regulations for batteries with nominal energy ≤ 100 Wh have to be used.

Batteriet **måste** skyddas mot kortslutning.

*The battery **must** be protected against short circuits.*

Tel: +49 (0)7151-1707-0

Fax: +49 (0)7151-1707-110

Amtsgericht Stuttgart HRA 728253

Persönlich haftender Gesellschafter: Föll GmbH

Amtsgericht Stuttgart HRB260321

E-Mail: info@rems.de

Internet: www.rems.de

Geschäftsführer:

Dr.-Ing. Christoph Föll-Laubengeiger

Dr.-Ing. Rudolf Wagner

Viika transportregler som gäller beror på respektive land och transportsätt.

The transport regulations depend on the country-specific provisions and on the type of transport.

Varje paket måste vara märkt med följande etiketter och åtföljas av ett följebrev enligt nedan:

Each package must be marked with the following labels. Furthermore, it is required to enclose an accompanying note as stated below

Klistermärke för transport på väg/järnväg och se

Labelling for transport by road/rail and sea



+ Klistermärke med avsändare och mottagare

+ *Label stating the consignor and consignee*

ADR/RID/IMDG-Code: Batteriet uppfyller kraven i Special Provision 188.

The battery meets the requirements of special provision 188.

Klistermärke för frakt/flygfrakt CAO

Shipping label/cargo aircraft only (CAO)



+ Klistermärke med avsändare och mottagare

+ *Label stating the consignor and consignee*

Följebrev / Accompanying note: UN 3480 LITHIUM-ION BATTERIES, 9, -, (E)

Special Provision 188

special provision 188

ICAO-TI/IATA-DGR:

Förpackningsföreskrifter 965, Teil II eller Teil IB

Packing instruction 965, Part II or Part IB

Tel: +49 (0)7151-1707-0

Fax: +49 (0)7151-1707-110

Amtsgericht Stuttgart HRA 728253

Persönlich haftender Gesellschafter: Föll GmbH

Amtsgericht Stuttgart HRB260321

E-Mail: info@rems.de

Internet: www.rems.de

Geschäftsführer:

Dr.-Ing. Christoph Föll-Laubengeiger

Dr.-Ing. Rudolf Wagner

15. Gällande föreskrifter

Provisions and Regulations

Hänvisningar till bestämmelser om transport av farligt gods:

References to provisions concerning the transport of hazardous goods

Lagen om transport av farligt gods (GGBefG)

Transportation of Dangerous Goods Act (GGBefG)

Förordning om transport av farligt gods på väg, järnväg och inre vattenvägar (GGVSEB)

Ordinance on the Transport of Dangerous Goods by Road, Rail and Inland Waterways (GGVSEB)

Förordning om transport av farligt gods till sjöss (GGVSee)

Ordinance on the Transport of Dangerous Goods by Sea (GGVSee)

Lufttrafiklagen (LuftVG), Lufttrafiklicensordning (LuftVZO)

Air Traffic Act (LuftVG), Air Traffic Licensing Order (LuftVZO)

Europeiska överenskommelsen om internationell transport av farligt gods på väg (ADR)

European Agreement concerning the International Carriage of Dangerous Goods by Road (ADR)

Förordning om internationell järnvägstransport av farligt gods (RID)

Regulation concerning the International Carriage of Dangerous Goods by Rail (RID)

Europeiska överenskommelsen om internationell transport av farligt gods på inre vattenvägar (ADN)

European Agreement concerning the International Carriage of Dangerous Goods by Inland Navigation (ADN)

Internationella koden för sjötransport av farligt gods (IMDG-Code)

International Maritime Dangerous Goods Code (IMDG-Code)

International Civil Aviation Organization –

Tekniska instruktioner för säker transport av farligt gods med flyg (ICAO-TI)

Technical Instructions for the Safe Transport of Dangerous Goods by Air (ICAO-TI)

International Air Transport Association –

Förordningarna för farligt gods (IATA-DGR)

Dangerous Goods Regulations (IATA-DGR)

Tel: +49 (0)7151-1707-0

Fax: +49 (0)7151-1707-110

Amtsgericht Stuttgart HRA 728253

Persönlich haftender Gesellschafter: Föll GmbH

Amtsgericht Stuttgart HRB260321

E-Mail: info@rems.de

Internet: www.rems.de

Geschäftsführer:

Dr.-Ing. Christoph Föll-Laubengeiger

Dr.-Ing. Rudolf Wagner

16. Laddningsstatus i enlighet med ändringen i IATA-föreskrifter för farligt gods från och med den 1 april 2016

State of Charge in Accordance with the Changes to the IATA Dangerous Goods Regulations Effective from 1 April 2016

I enlighet med ändringen i IATA-föreskrifter för farligt gods, som träder i kraft 1 april 2016, bekräftar REMS GmbH & Co KG att litiumjonbatterierna (UN 3480), som tillverkats från och med den 1 april 2016 har laddningsstatus (SoC) på högst 30 % av sin designkapacitet när de lämnas till transpor.

In accordance with the changes to the IATA Dangerous Goods Regulations, which entered into force on 1 April 2016, REMS GmbH & Co KG confirms that all lithium-ion batteries (UN 3480) manufactured from 1 April 2016 will be handed over for transportation with their state of charge (SoC) not exceeding 30% of their design capacity.

17. Övrig information

Other information

Denna information har sammanställts efter bästa förmåga och i god tro. REMS GmbH & Co. KG kan dock inte garantera att informationen är korrekt, pålitlig och fullständig. Det är användarens eget ansvar att försäkra sig om att informationen är lämplig, fullständig samt relevant för den specifika tillämpningen.

This information has been meticulously compiled to the best of our knowledge and belief. REMS GmbH & Co KG excludes any warranty whatsoever for the accuracy, reliability or completeness of the information provided herein! It is the user's responsibility to check the information's suitability, completeness and timeliness with regard to the relevant purpose of use.

Tel: +49 (0)7151-1707-0

Fax: +49 (0)7151-1707-110

Amtsgericht Stuttgart HRA 728253

Persönlich haftender Gesellschafter: Föll GmbH

Amtsgericht Stuttgart HRB260321

E-Mail: info@rems.de

Internet: www.rems.de

Geschäftsführer:

Dr.-Ing. Christoph Föll-Laubengeiger

Dr.-Ing. Rudolf Wagner

PRODUKT-SIKKERHETS DATABLAD**MATERIAL SAFETY DATA SHEET**

Litium-ion-manganoksid-batteri
Lithium ion manganese oxide battery

Artikkel nr.: 571555 R14H / Item no.: 571555 R14H

I henhold til direktiv (EF) nr. 1907/2006 (Reach) må et sikkerhetsdatablad kun utstedes for stoffer og preparater. Batterier berøres ikke av kravene i dette direktivet.

According to Regulation (EC) No. 1907/2006 (REACH), a safety data sheet must be provided solely for substances and preparations. Batteries are not affected by the requirements of this Regulation.

1. Identifikasjon av stoffet og fabrikanten*Product Designation and Name of the Manufacturer*

Identifikasjon: <i>Identification</i>	Produktkategori: <i>Product category</i>	Litium-ion-batteri <i>Lithium-ion battery</i>
	Betegnelse: <i>Model name</i>	4S2P
	Nominell spenning: <i>Nominal voltage</i>	14.4V
	Nominell kapasitet: <i>Nominal capacity</i>	5.0Ah
	Nominell energi: <i>Nominal energy</i>	72Wh
	Kjemisk system: <i>Chemical system</i>	Litium-manganoksid / Grafit <i>Lithium manganese oxide / Graphite</i>
	Oppladbart: <i>Rechargeable</i>	Ja Yes
Fabrikant: <i>Manufacturer</i>	Navn og adresse: <i>Name and address</i>	REMS GmbH & Co KG Stuttgarter Straße 83 D-71332 Waiblingen
	Telefon / <i>phone</i> :	+49 (0) 7151/ 1707-0
	Telefaks / <i>fax</i> :	+49 (0) 7151/ 1707-110
	E-post / <i>e-mail</i> :	info@rems.de

Tel: +49 (0)7151-1707-0

Fax: +49 (0)7151-1707-110

Amtsgericht Stuttgart HRA 728253

Persönlich haftender Gesellschafter: Föll GmbH

Amtsgericht Stuttgart HRB260321

E-Mail: info@rems.de

Internet: www.rems.de

Geschäftsführer:

Dr.-Ing. Christoph Föll-Laubengeiger

Dr.-Ing. Rudolf Wagner

2. Vurdering av farer

Possible Hazards

Klassifisering: Dette oppladbare litium-ion-batteriet har en nominell energi på > 100Wh. Det er spesielle bestemmelser i de ulike transportforskriftene.

Classification: *This lithium-ion battery has a nominal energy of > 100Wh, which is why it is subject to certain special provisions under the hazardous substances law.*

Farer: Litium-ion-batterier kan innebære fare for brann eller eksplosjon eller kjemisk etsning ved feil behandling. Må ikke kortsluttes, gjennombores, brennes, klemmes, senkes i vann, utlades med tvang eller utsettes for temperaturer høyere enn produktets angitte driftstemperaturområde. Les instruksjonene nøye. Under normale bruksforhold befinner kjemikaliene og metallene seg i et forseglet hylster og blir ikke eksponert for det utenforliggende området. Det er kun fare for eksponering i tilfelle misbruk (mekanisk, termisk eller elektrisk) som fører til aktivering av sikkerhetsventiler og/eller revning av batteribeholderen. Elektrolyttlekkasje, elektrodematerialer som reagerer med fuktighet/vann eller batteri-avlufing/brann/eksplosjon kan bli følgen, avhengig av forholdene.

Hazards: *When handled improperly, lithium-ion batteries may explode, or cause fire or chemical burns. Batteries must not be short-circuited, punctured, thrown into fire, crushed, immersed in water, forcibly discharged or exposed to temperatures exceeding the product's specified operating range. Please read the operating instructions thoroughly. The escape of and contact with any hazardous and toxic substances is not possible under normal conditions of use. A risk of exposure only exists in case of improper (mechanical, thermal, electrical) use which leads to the activation of safety valves and/or the rupture of the battery housing. Depending on the surrounding circumstances, the following might occur: electrolyte leakage, reaction of the electrode materials with moisture/water or battery venting/fire/explosion.*

Toksisitet: Hvis et batteri brenner, kan dampene irritere øynene, huden og luftveiene.

Toxicity: *If a battery burns, smoke or vapors are generated. These may cause eye, skin and respiratory tract irritations.*

Tel: +49 (0)7151-1707-0

Fax: +49 (0)7151-1707-110

Amtsgericht Stuttgart HRA 728253

Persönlich haftender Gesellschafter: Föll GmbH

Amtsgericht Stuttgart HRB260321

E-Mail: info@rems.de

Internet: www.rems.de

Geschäftsführer:

Dr.-Ing. Christoph Föll-Laubengeiger

Dr.-Ing. Rudolf Wagner

3. Sammensetning og informasjon om ingredienser

Composition and Information About the Individual Components

Batteriet inneholder følgende:

The following components are contained in the sealed cell:

Del	Navn materiale	Konsentrasjonsområde (wt %)	CAS-nummer
Positiv elektrode	Lithium transition metal oxidate Li[M]m[O]n	20~60	12190-79-3 12057-17-9 182442-95-1
Positiv elektrode base	Aluminium	1~10	7429-90-5
Negativ elektrode	Karbon	10~30	7429-90-5
Negativ elektrode base	Kobber	1~15	7440-44-0
Elektrolytt	Organisk elektrolytt som hovedsakelig inneholder ester karbonat	5~25	Konfidensielt
Ytre kapsel	Aluminium, jern, aluminium laminert plastikk	1~30	7429-90-5; 7439-89-6

Component	Material name	Concentration range (wt %)	CAS number
Positive electrode	Lithium transition metal oxidate Li[M]m[O]n	20~60	12190-79-3 12057-17-9 182442-95-1
Positive electrode's base	Aluminum	1~10	7429-90-5
Negative electrode	Carbon	10~30	7429-90-5
Negative electrode's base	Copper	1~15	7440-44-0
Electrolyte	Organic electrolyte principally involves ester carbo- nate	5~25	Confidential
Outer case	Aluminum, iron, aluminum laminated plastic	1~30	7429-90-5; 7439-89-6

Tel: +49 (0)7151-1707-0

Fax: +49 (0)7151-1707-110

Amtsgericht Stuttgart HRA 728253

Persönlich haftender Gesellschafter: Föll GmbH

Amtsgericht Stuttgart HRB260321

E-Mail: info@rems.de

Internet: www.rems.de

Geschäftsführer:

Dr.-Ing. Christoph Föll-Laubengeiger

Dr.-Ing. Rudolf Wagner

4. Førstehjelpstiltak

First Aid Measures

Kjemikaliene befinner seg i forseglede hylstre. Under normale bruksforhold er det kun fare for eksponering ved mekanisk skade av batteriet.

The chemicals are contained in a sealed housing so that they cannot escape during normal use. Leakage may only be caused as a result of mechanical damage to the housing.

Hvis det lekker kjemikalier må instruksjonene følges:

If chemicals do leak, the following must be observed:

Innånding:	Innholdet av et åpnet batteri kan irritere luftveiene. Sørg for frisk luft og kontakt lege.
<i>Inhalation:</i>	<i>Escaping gases may cause respiratory tract irritation. Immediately ventilate or leave the room to get into fresh air. In more serious cases, call a doctor immediately.</i>
Hudkontakt:	Innholdet av et åpnet batteri kan irritere huden. Vask huden grundig med såpe og vann.
<i>Skin contact:</i>	<i>Skin irritations may occur. Thoroughly wash the skin with soap and water.</i>
Kontakt med øynene:	Innholdet av et åpnet batteri kan irritere øynene. Skyll øynene straks øynene: nøye med vann i 15 minutter og kontakt lege.
<i>Eye contact:</i>	<i>Eye irritations may occur. Immediately and thoroughly rinse the eyes with water for 15 minutes then seek medical assistance.</i>

5. Tiltak ved brannslukking

Fire Fighting Measures

Ved brann:	Bruk bare pulverslokkingsapparater.
<i>In case of fire:</i>	<i>Only use Class D (dry powder) fire extinguishers.</i>
Advarsel:	Før du begynner å slokke brannen, må du sørge for at du befinner deg på den siden vinden kommer fra i forhold til brannen. Da innånder du ikke giftige damper.
<i>Caution:</i>	<i>Before you start extinguishing the fire, be sure to go to the side of the fire from which the wind is coming. In this way, you will not inhale any toxic vapours.</i>

Tel: +49 (0)7151-1707-0

Fax: +49 (0)7151-1707-110

Amtsgericht Stuttgart HRA 728253

Persönlich haftender Gesellschafter: Föll GmbH

Amtsgericht Stuttgart HRB260321

E-Mail: info@rems.de

Internet: www.rems.de

Geschäftsführer:

Dr.-Ing. Christoph Föll-Laubengeiger

Dr.-Ing. Rudolf Wagner

6. Tiltak ved utilsiktet utslipp

Measures to Be Implemented in Case of Accidental Leakage

Tørk opp lekket elektrolyttvæske med et absorberende stykke stoff.

Leaked electrolyte fluid should be wiped up with an absorbent cloth.

Hvis det har lekket mye elektrolytt må du bruke:

Personal protective equipment should be worn in case of larger leakages:

- ↪ **Verneklær**
protective clothing
- ↪ **Gassmaske mot organiske gasser**
gas mask for protection against organic gases
- ↪ **vernebriller**
safety goggles
- ↪ **vernehansker**
protective gloves

7. Håndtering og oppbevaring

Handling and Storage

- Håndtering:** Batteriet må ikke åpnes. Må ikke klemmes, demonteres, slippes eller loddes.
Handling: *Neither open, crush nor disassemble the battery, nor let it drop from a great height nor solder anything onto it.*
- Lading:** Må lades innenfor temperaturgrensen på 0 °C til +45 °C. Må bare lades med den spesifiserte laderen som hører til dette batteriet.
Charging: *The charging temperature must be between +32 °F and +113 °F. Only use the charger designated for this battery.*
- Utladning:** Må utlades innenfor temperaturgrensen på -20 °C til +60 °C.
Discharging: *The battery may only be discharged at temperatures from -4 °F to +140 °F.*
- Advarsel:** Feil håndtering kan føre til brann eller eksplosjon!
Caution: *Improper handling may cause fire or explosion!*
- Lagring:** Temperatur: -20 °C til +40 °C i mindre enn 3 måneder
Storage: *Temperature: -4 °F to +104 °F, for less than 3 months*
Luftfuktighet: 0 % til 80 %
Humidity range: 0 % to 80 %
Lagres på er godt ventilert sted. / *Store in a well-ventilated place.*
Kortslutning kan forårsake brann. / *Short circuits may cause fires.*
Må ikke lagres sammen med metallgjenstander. / *Do not store along with other metal objects.*

Tel: +49 (0)7151-1707-0

Fax: +49 (0)7151-1707-110

Amtsgericht Stuttgart HRA 728253

Persönlich haftender Gesellschafter: Föll GmbH

Amtsgericht Stuttgart HRB260321

E-Mail: info@rems.de

Internet: www.rems.de

Geschäftsführer:

Dr.-Ing. Christoph Föll-Laubengeiger

Dr.-Ing. Rudolf Wagner

8. Eksponeringskontroll og personlig verneutstyr

Monitoring of the Stored Goods and Personal Protective Equipment

Anbefalingene i punkt 7 må følges. Man må overvåke at lagringstemperaturen er innenfor grensene til enhver tid. Sørg også for god ventilasjon og at luftfuktigheten er innenfor grensene. Ved normal bruk kreves det ikke verneutstyr.

Observe the information stated in Section 7. Continuously monitor the storage temperature so as to ensure that it is within the specified limits. Apart from that, it is required to ensure good ventilation and that the humidity does not exceed the specified limits. No protective equipment is required during normal handling.

9. Fysiske og kjemiske egenskaper

Physical and Chemical Properties

Utseende:	8 celler i hus
<i>Appearance:</i>	<i>Housing with 8 cells</i>
Vekt:	520 g
<i>Weight:</i>	<i>520 g</i>
Kjemiske egenskaper:	se punkt 3
<i>Chemical properties:</i>	<i>see Section 3</i>

10. Stabilitet og reaktivitet

Stability and Reactivity

Ved lagring over 12 måneder avtar kapasiteten og batteriets levetid blir kortere. Hvis det skulle lekke elektrolytt, kan plasthuset bli skadet.

Storage periods of more than 12 months will decrease the battery's capacity and expected lifespan. Electrolyte leakages may damage the housing on the inside.

11. Informasjon om giftighet

Toxicological Information

Ved normal bruk vil det ikke oppstå lekkasje, og derfor vil det ikke være noen kontakt med giftige stoffer fra batteriet.

The escape of and contact with any hazardous and toxic substances is not possible under normal conditions of use.

Tel: +49 (0)7151-1707-0

Fax: +49 (0)7151-1707-110

Amtsgericht Stuttgart HRA 728253

Persönlich haftender Gesellschafter: Föll GmbH

Amtsgericht Stuttgart HRB260321

E-Mail: info@rems.de

Internet: www.rems.de

Geschäftsführer:

Dr.-Ing. Christoph Föll-Laubengeiger

Dr.-Ing. Rudolf Wagner

12. Økologisk informasjon

Environment-Related Information

Ved normal bruk av batteriet oppstår det ikke miljøforurensning. Batteriet inneholder imidlertid kjemikalier som kan innebære en fare for miljøet. Når brukte batterier skal kastes, må man alltid følge instruksjonene som beskrives i punkt 13.

Provided that the battery is handled properly, environmental pollution does not occur. After use, however, the battery must be disposed of separately as it contains hazardous chemicals. See Section 13.

13. Fjerning av avfall

Disposal Instructions

Batteriet er spesialavfall.

Det er ikke tillatt å kaste det sammen med restavfall.

Hvis batteriet ikke skal brukes mer, må det kastes i samsvar med gjeldende regler for gjenvinning.

Batteries are classified as hazardous waste.

The battery may only be disposed of by returning it to an authorized collection point.

It is prohibited to dispose of the battery with normal household waste.

14. Informasjon om transport

Transportation information

Generell erklæring:

General explanation

Det er begrensende forskrifter for transport av disse produktene med fly, bil, tog eller båt. Nedenfor vises referanser til disse forskriftene. Siden lovgivningen er gjenstand for hyppige endringer, skal transportøren sørge for at varene transporteres i samsvar med lovgivningen som gjelder på tidspunktet for forsendelse. Hvis det er nødvendig, kontaktes fabrikanten for hjelp i den forbindelse.

Restrictive regulations are applicable to the product's transport by air, road, rail or sea. Below you will find references to these regulations. As these laws are subject to frequent changes, the transport company shall ensure that the products are transported according to the regulations applicable at the time of shipment. Please contact the manufacturer of the products if you need any assistance in this matter.

Transport av batteriet i henhold til retningslinje UN 3480/3481 (1).

Reguleringene for batterier med en rangert kapasitet på ≤ 100 Wh er gjeldende.

Transportation of the battery according to Directive UN 3480/3481 (1).

The regulations for batteries with nominal energy ≤ 100 Wh have to be used.

Batteriet må beskyttes mot kortslutning.

The battery must be protected against short circuits.

Tel: +49 (0)7151-1707-0

Fax: +49 (0)7151-1707-110

Amtsgericht Stuttgart HRA 728253

Persönlich haftender Gesellschafter: Föll GmbH

Amtsgericht Stuttgart HRB260321

E-Mail: info@rems.de

Internet: www.rems.de

Geschäftsführer:

Dr.-Ing. Christoph Föll-Laubengeiger

Dr.-Ing. Rudolf Wagner

Transportbestemmelsene avhenger av regionen og transportmetoden.

The transport regulations depend on the country-specific provisions and on the type of transport.

Hver pakke må merkes med følgende etiketter og ledsages av et følgebrev som angitt nedenfor:

Each package must be marked with the following labels. Furthermore, it is required to enclose an accompanying note as stated below

Klistremerke for transport på vei/jernbane og se

Labelling for transport by road/rail and sea



+ Klistremerke med avsender og mottaker

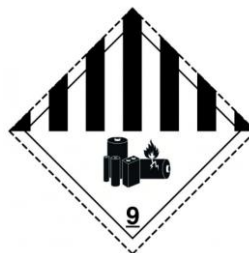
+ Label stating the consignor and consignee

ADR/RID/IMDG-Code: Batteriet innfrir kravene i henhold til spesiell bestemmelse 188.

The battery meets the requirements of special provision 188.

Klistremerke for frakt /flyfrakt CAO

Shipping label/cargo aircraft only (CAO)



+ Klistremerke med avsender og mottaker

+ Label stating the consignor and consignee

Følgebrev / Accompanying note: UN 3480 LITHIUM-ION BATTERIES, 9, -, (E)

Spesiell bestemmelse 188

special provision 188

ICAO-TI/IATA-DGR: Emballasjeinstruksjoner 965, del II eller del IB

Packing instruction 965, Part II or Part IB

Tel: +49 (0)7151-1707-0

Fax: +49 (0)7151-1707-110

Amtsgericht Stuttgart HRA 728253

Persönlich haftender Gesellschafter: Föll GmbH

Amtsgericht Stuttgart HRB260321

E-Mail: info@rems.de

Internet: www.rems.de

Geschäftsführer:

Dr.-Ing. Christoph Föll-Laubengeiger

Dr.-Ing. Rudolf Wagner

15. Opplysninger om lover og forskrifter

Bestemmelser og forskrifter

Henvisninger til bestemmelser om transport av farlig gods:

References to provisions concerning the transport of hazardous goods

Lov om transport av farlig gods (GGBefG)

Transportation of Dangerous Goods Act (GGBefG)

Forordning om transport av farlig gods på vei, jernbane og innlands-navigasjon (GGVSEB)

Ordinance on the Transport of Dangerous Goods by Road, Rail and Inland Waterways (GGVSEB)

Forordning om transport av farlig gods til havs (GGVSee)

Ordinance on the Transport of Dangerous Goods by Sea (GGVSee)

Lov om luftfart (LuftVG), lisensieringsordre luftfart (LuftVZO)

Air Traffic Act (LuftVG), Air Traffic Licensing Order (LuftVZO)

Europeisk overenskomst angående internasjonal transport av farlig gods på vei (ADR)

European Agreement concerning the International Carriage of Dangerous Goods by Road (ADR)

Forskrift om internasjonal transport av farlig gods med jernbane (RID)

Regulation concerning the International Carriage of Dangerous Goods by Rail (RID)

Europeisk avtale om internasjonal transport av farlig gods ved innlandsnavigasjon (ADN)

European Agreement concerning the International Carriage of Dangerous Goods by Inland Navigation (ADN)

I Internasjonal kode for maritim frakt av farlig gods (IMDG)

International Maritime Dangerous Goods Code

International Civil Aviation Organization –

Tekniske instruksjoner for sikker transport av farlig gods med fly (ICAO-TI)

Technical Instructions for the Safe Transport of Dangerous Goods by Air (ICAO-TI)

International Air Transport Association –

Regler for farlig gods (IATA-DGR)

Dangerous Goods Regulations (IATA-DGR)

Tel: +49 (0)7151-1707-0

Fax: +49 (0)7151-1707-110

Amtsgericht Stuttgart HRA 728253

Persönlich haftender Gesellschafter: Föll GmbH

Amtsgericht Stuttgart HRB260321

E-Mail: info@rems.de

Internet: www.rems.de

Geschäftsführer:

Dr.-Ing. Christoph Föll-Laubengeiger

Dr.-Ing. Rudolf Wagner

16. Ladestatus i samsvar med IATA-forskriftene om farlig gods fra 1. april 2016

State of Charge in Accordance with the Changes to the IATA Dangerous Goods Regulations Effective from 1 April 2016

I samsvar med endringen i IATA-forskriftene om farlig gods, som trådte i kraft 1. april 2016, bekrefter REMS GmbH & Co KG at litium-ionbatteriene (UN 3480) produsert etter 1. april 2016 har ladetilstand (SoC) på maksimalt 30 % av sin kapasitet når de overføres for transport.

In accordance with the changes to the IATA Dangerous Goods Regulations, which entered into force on 1 April 2016, REMS GmbH & Co KG confirms that all lithium-ion batteries (UN 3480) manufactured from 1 April 2016 will be handed over for transportation with their state of charge (SoC) not exceeding 30% of their design capacity.

17. Andre opplysninger

Other Information

Disse opplysningene er etter vår mening og kjennskap samlet på en nøyaktig måte. REMS GmbH & Co. KG utelukker imidlertid enhver garanti for nøyaktighet, pålitelighet eller fullstendighet av informasjonen. Det er brukerens ansvar å påse at denne informasjonen er egnet til og komplett ved en spesifikk bruk.

This information has been meticulously compiled to the best of our knowledge and belief. REMS GmbH & Co KG excludes any warranty whatsoever for the accuracy, reliability or completeness of the information provided herein! It is the user's responsibility to check the information's suitability, completeness and timeliness with regard to the relevant purpose of use.

Tel: +49 (0)7151-1707-0

Fax: +49 (0)7151-1707-110

Amtsgericht Stuttgart HRA 728253

Persönlich haftender Gesellschafter: Föll GmbH

Amtsgericht Stuttgart HRB260321

E-Mail: info@rems.de

Internet: www.rems.de

Geschäftsführer:

Dr.-Ing. Christoph Föll-Laubengeiger

Dr.-Ing. Rudolf Wagner

SIKKERHEDSDATAARK FOR PRODUKT MATERIAL SAFETY DATA SHEET

Lithium-ion manganoxid batteri
Lithium ion manganese oxide battery

Produkt nr.: 571555 R14H / Item no.: 571555 R14H

I henhold til forordning (EF) nr. 1907/2006 (REACH) skal der kun stilles et sikkerhedsdatablad til rådighed for stoffer og præparater. Batterier er ikke omfattet af kravene i denne forordning.

According to Regulation (EC) No. 1907/2006 (REACH), a safety data sheet must be provided solely for substances and preparations. Batteries are not affected by the requirements of this Regulation.

1. Produktnavn og producentens oplysninger

Product Designation and Name of the Manufacturer

Identifikation: <i>Identification</i>	Produktkategori: <i>Product category</i>	Lithium-ion-batteri <i>Lithium-ion battery</i>
	Betegnelse: <i>Model designation</i>	4S2P
	Nominelle spænding: <i>Nominal voltage</i>	14.4V
	Nominelle kapacitet: <i>Nominal capacity</i>	5.0Ah
	Nominel energi: <i>Nominal energy</i>	72Wh
	Kemisk system: <i>Chemical system</i>	Lithiummanganoxid/grafit <i>Lithium manganese oxide / Graphite</i>
	Genopladelige: <i>Rechargeable</i>	Ja <i>Yes</i>

Producent: <i>Manufacturer</i>	Navn og adresse: <i>Name and address</i>	REMS GmbH & Co KG Stuttgarter Strasse 83 D-71332 Waiblingen
	Telefon / <i>phone</i> :	+49 (0) 7151/1707-0
	Fax / <i>fax</i> :	+49 (0) 7151/1707-110
	E-mail / <i>e-mail</i> :	info@rems.de

Tel: +49 (0)7151-1707-0

Fax: +49 (0)7151-1707-110

Amtsgericht Stuttgart HRA 728253

Persönlich haftender Gesellschafter: Föll GmbH

Amtsgericht Stuttgart HRB260321

E-Mail: info@rems.de

Internet: www.rems.de

Geschäftsführer:

Dr.-Ing. Christoph Föll-Laubengeiger

Dr.-Ing. Rudolf Wagner

2. Mulige farer

Possible Hazards

- Klassificering:** Li-Ion-batteriet har en nominel energi på > 100 Wh, og er derfor underlagt visse særlige bestemmelser i lovgivningen om farligt gods.
- Classification:** *This lithium-ion battery has a nominal energy of > 100Wh, which is why it is subject to certain special provisions under the hazardous substances law.*
- Farer:** Lithium-ion-batterier kan ved forkert håndtering udvikle brand, eksplodere eller forårsage kemiske forbrændinger. Udsæt aldrig for kortslutning, gennemboring, åben ild, knusning, nedsækning i vand, tvungen udtømning eller for temperaturer uden for produktets specificerede driftsområde. Læs venligst brugsanvisningen omhyggeligt.
Under normale forhold udsendes der ingen farlige stoffer, og der kan ikke opstå kontakt med giftige stoffer. Der findes kun en risiko for eksponering ved forkert håndtering (mekanisk, termisk, elektrisk), hvilket fører til aktivering af sikkerhedsventilerne og/eller nedbrydning af kabinettet. Det kan, afhængigt af omstændighederne, resultere i udsivning af elektrolytvæsken, elektrodematerialernes reaktion med fugt/vand eller batteriudluftning/brand/eksplosion.
- Hazards:** *When handled improperly, lithium-ion batteries may explode, or cause fire or chemical burns. Batteries must not be short-circuited, punctured, thrown into fire, crushed, immersed in water, forcibly discharged or exposed to temperatures exceeding the product's specified operating range. Please read the operating instructions thoroughly.*
The escape of and contact with any hazardous and toxic substances is not possible under normal conditions of use. A risk of exposure only exists in case of improper (mechanical, thermal, electrical) use which leads to the activation of safety valves and/or the rupture of the battery housing. Depending on the surrounding circumstances, the following might occur: electrolyte leakage, reaction of the electrode materials with moisture/water or battery venting/fire/explosion.
- Toksicitet:** Hvis et batteri brænder, kan det forårsage irritation, på grund af røg eller opståede dampe, af øjne, hud og luftveje.
- Toxicity:** *If a battery burns, smoke or vapors are generated. These may cause eye, skin and respiratory tract irritations.*

Tel: +49 (0)7151-1707-0

Fax: +49 (0)7151-1707-110

Amtsgericht Stuttgart HRA 728253

Persönlich haftender Gesellschafter: Föll GmbH

Amtsgericht Stuttgart HRB260321

E-Mail: info@rems.de

Internet: www.rems.de

Geschäftsführer:

Dr.-Ing. Christoph Föll-Laubengeiger

Dr.-Ing. Rudolf Wagner

3. Sammensætning og oplysning om indholdsstoffer

Composition and Information About the Individual Components

De følgende komponenter er indeholdt i den forseglede celle:

The following components are contained in the sealed cell

Komponent	Materialenavn	Koncentrations område (vægt %)	CAS-nummer
Positiv elektrode	Lithiumovergang metalloxide Li[M]m[O]n	20~60	12190-79-3 12057-17-9 182442-95-1182442-95-1
Positiv elektrodens base	Aluminium	1~10	7429-90-5
Negativ elektrode	Kulstof	10~30	7429-90-5
Negativ elektrodens base	Kobber	1~15	7440-44-0
Elektrolyt	Organisk elektrolyt hovedsagelig baseret på estere af carbonsyre	5~25	Fortroligt
Ydre beholder	Aluminium, jern, aluminium-lamineret plastik	1~30	7429-90-5; 7439-89-6

Component	Material name	Concentration range (wt %)	CAS number
Positive electrode	Lithium transition metal oxidate Li[M]m[O]n	20~60	12190-79-3 12057-17-9 182442-95-1
Positive electrode's base	Aluminum	1~10	7429-90-5
Negative electrode	Carbon	10~30	7429-90-5
Negative electrode's base	Copper	1~15	7440-44-0
Electrolyte	Organic electrolyte principally involves ester carbo- nate	5~25	Confidential
Outer case	Aluminum, iron, aluminum laminated plastic	1~30	7429-90-5; 7439-89-6

Tel: +49 (0)7151-1707-0

Fax: +49 (0)7151-1707-110

Amtsgericht Stuttgart HRA 728253

Persönlich haftender Gesellschafter: Föll GmbH

Amtsgericht Stuttgart HRB260321

E-Mail: info@rems.de

Internet: www.rems.de

Geschäftsführer:

Dr.-Ing. Christoph Föll-Laubengeiger

Dr.-Ing. Rudolf Wagner

4. Førstehjælpsforanstaltninger

First Aid Measures

De kemikalier, der er anført under punkt 3, er indeholdt i et forsejlet kabinet, så de ikke kan sive ud under normalt brug. Risikoen for udsivning skyldes kun mekaniske skader på kabinettet.

The chemicals stated in Section 3 are contained in a sealed housing so that they cannot escape during normal use. Leakage may only be caused as a result of mechanical damage to the housing.

Hvis kemikalier siver ud, skal du være opmærksom på følgende:

If chemicals do leak, the following must be observed

- | | |
|----------------------|--|
| Inhalering: | Udslip af gasser kan føre til åndedrætsbesvær. Ventilér straks eller gå ud i frisk luft, i værre tilfælde skal du straks kontakte en læge. |
| <i>Inhalation:</i> | <i>Escaping gases may cause respiratory tract irritation. Immediately ventilate or leave the room to get into fresh air. In more serious cases, call a doctor immediately.</i> |
| Hudkontakt: | Hudirritation kan forekomme. Vask huden grundigt med sæbe og vand. |
| <i>Skin contact:</i> | <i>Skin irritations may occur. Thoroughly wash the skin with soap and water.</i> |
| Øjenkontakt: | Der kan forekomme irritation i øjnene. Skyl øjeblikkeligt øjnene med vand i 15 minutter, og konsulter derefter en læge. |
| <i>Eye contact:</i> | <i>Eye irritations may occur. Immediately and thoroughly rinse the eyes with water for 15 minutes then seek medical assistance.</i> |

5. Bandbekæmpelse

Fire Fighting Measures

- | | |
|-----------------------------|--|
| I tilfælde af brand: | Brug kun brandslukkere i brandklasse D (tørpulver). |
| <i>In case of fire:</i> | <i>Only use Class D (dry powder) fire extinguishers.</i> |
| Advarsel: | Før du begynder at slukke branden, skal du stå på den side af branden, hvorfra vinden kommer. Så du ikke inhalerer giftige dampe. |
| <i>Caution:</i> | <i>Before you start extinguishing the fire, be sure to go to the side of the fire from which the wind is coming. In this way, you will not inhale any toxic vapours.</i> |

Tel: +49 (0)7151-1707-0

Fax: +49 (0)7151-1707-110

Amtsgericht Stuttgart HRA 728253

Persönlich haftender Gesellschafter: Föll GmbH

Amtsgericht Stuttgart HRB260321

E-Mail: info@rems.de

Internet: www.rems.de

Geschäftsführer:

Dr.-Ing. Christoph Föll-Laubengeiger

Dr.-Ing. Rudolf Wagner

6. Forholdsregler ved uheldige udslip

Measures to Be Implemented in Case of Accidental Leakage

Lækket elektrolytvæske skal tørres op med et absorberende stykke stof.

Leaked electrolyte fluid should be wiped up with an absorbent cloth.

I tilfælde af større udslip skal beskyttelsestøj anvendes:

Personal protective equipment should be worn in case of larger leakages:

- ↪ **beskyttelsesbeklædning**
protective clothing
- ↪ **gasmasker mod organiske gasser**
gas mask for protection against organic gases
- ↪ **beskyttelsesbriller**
safety goggles
- ↪ **beskyttelseshandsker**
protective gloves

7. Håndtering og opbevaring

Handling and Storage

Håndtering: Batteriet må ikke åbnes, knuses eller skilles ad eller falde fra større højde eller påloddet noget.

Handling: *Neither open, crush nor disassemble the battery, nor let it drop from a great height nor solder anything onto it.*

Opladning: Opladningstemperaturen skal være mellem 0 °C og +45 °C. Batteriet må kun oplades med den tilhørende oplader.

Charging: *The charging temperature must be between +32 °F and +113 °F. Only use the charger designated for this battery.*

Afladning: Batteriet kan kun aflades mellem -20 °C og +60 °C.

Discharging: *The battery may only be discharged at temperatures from -4 °F to +140 °F.*

Advarsel: Forkert håndtering kan forårsage en eksplosion eller forårsage brand!

Caution: *Improper handling may cause fire or explosion!*

Opbevaring: Temperatur: -20 °C till +40 °C i mindre end 3 måneder

Storage: *Temperature: -4 °F to +104°F for less than 3 months*

Fugtighed: 0 % til 80 %

Humidity range: 0 % to 80 %

Opbevaringspladsen skal være godt ventileret. / *Store in a well-ventilated place.*

En kortslutning kan forårsage brand. / *Short circuits may cause fires.*

Batterierne må ikke opbevares sammen med andre metalgenstande. / *Do not store along with other metal objects.*

Tel: +49 (0)7151-1707-0

Fax: +49 (0)7151-1707-110

Amtsgericht Stuttgart HRA 728253

Persönlich haftender Gesellschafter: Föll GmbH

Amtsgericht Stuttgart HRB260321

E-Mail: info@rems.de

Internet: www.rems.de

Geschäftsführer:

Dr.-Ing. Christoph Föll-Laubengeiger

Dr.-Ing. Rudolf Wagner

8. Overvågning af opbevarede varer og beskyttelsesudstyr

Monitoring of the Stored Goods and Personal Protective Equipment

Instruktionerne under punkt 7 skal overholdes. Overholdelse af opbevaringstemperaturen inden for de specificerede grænser skal overvåges kontinuerligt. Der skal ligeledes sikres en god ventilation og en fugtighed indenfor de specificerede grænser. Der kræves ikke noget beskyttelsesudstyr til normal håndtering af batterierne.

Observe the information stated in Section 7. Continuously monitor the storage temperature so as to ensure that it is within the specified limits. Apart from that, it is required to ensure good ventilation and that the humidity does not exceed the specified limits. No protective equipment is required during normal handling.

9. Fysiske og kemiske egenskaber

Physical and Chemical Properties

Udseende: 8 Celler i kabinettet.
Appearance: Housing with 8 cells

Vægt: 520 g
Weight: 520 g

Kemiske Egenskaber: se punkt 3
Chemical properties: see Section 3

10. Stabilitet og reaktivitet

Stability and Reactivity

Opbevaring i mere end 12 måneder reducerer batteriets kapacitet, og forkorter den forventede levetid. Kabinettet kan blive beskadiget indefra af udsivende elektrolytter.

Storage periods of more than 12 months will decrease the battery's capacity and expected lifespan. Electrolyte leakages may damage the housing on the inside.

11. Toksikologiske oplysninger

Toxicological Information

Ved normal håndtering slipper ingen farlige stoffer ud af batteriet, og der kan derfor ikke opstå kontakt med giftige stoffer.

The escape of and contact with any hazardous and toxic substances is not possible under normal conditions of use.

Tel: +49 (0)7151-1707-0

Fax: +49 (0)7151-1707-110

Amtsgericht Stuttgart HRA 728253

Persönlich haftender Gesellschafter: Föll GmbH

Amtsgericht Stuttgart HRB260321

E-Mail: info@rems.de

Internet: www.rems.de

Geschäftsführer:

Dr.-Ing. Christoph Föll-Laubengeiger

Dr.-Ing. Rudolf Wagner

12. Miljøoplysninger

Environment-Related Information

Under normale forhold skader batteriet ikke miljøet. Dog skal det bortskaffes separat efter brug, da det indeholder farlige kemikalier. Se punkt 13.

Provided that the battery is handled properly, environmental pollution does not occur. After use, however, the battery must be disposed of separately as it contains hazardous chemicals. See Section 13.

13. Henvisninger vedrørende bortskaffelse

Disposal Instructions

Et batteri er farligt affald.

Batteriet må kun bortskaffes via et godkendt retursystem.

Batteriet må ikke bortskaffes som restaffald.

Batteries are classified as hazardous waste.

The battery may only be disposed of by returning it to an authorized collection point.

It is prohibited to dispose of the battery with normal household waste.

14. Transportoplysninger

Transportation information

Generel erklæring

General explanation

Restriktive regler regulerer forsendelsen af dette produkt med luftfragt, vejtransport, jernbane eller ad søvejen. Henvisninger til disse regler findes nedenfor. Da lovgivningen ændres regelmæssigt, skal transportøren sikre sig, at produkterne transporteres i henhold til de relevante og gyldige retningslinjer på transporttidspunktet. Hvis du har brug for hjælp i denne sag, bedes du kontakte producenten af produkterne.

Restrictive regulations are applicable to the product's transport by air, road, rail or sea. Below you will find references to these regulations. As these laws are subject to frequent changes, the transport company shall ensure that the products are transported according to the regulations applicable at the time of shipment. Please contact the manufacturer of the products if you need any assistance in this matter.

Transport af batteriet i henhold til retningslinje UN 3480/3481 (1).

Reguleringerne for batterier med en bedømt kapacitet på < 100 Wh skal anvendes.

Transportation of the battery according to Directive UN 3480/3481 (1).

The regulations for batteries with nominal energy ≤ 100 Wh have to be used.

Batteriet **skal** beskyttes mod kortslutning.

The battery **must** be protected against short circuits.

Tel: +49 (0)7151-1707-0

Fax: +49 (0)7151-1707-110

Amtsgericht Stuttgart HRA 728253

Persönlich haftender Gesellschafter: Föll GmbH

Amtsgericht Stuttgart HRB260321

E-Mail: info@rems.de

Internet: www.rems.de

Geschäftsführer:

Dr.-Ing. Christoph Föll-Laubengeiger

Dr.-Ing. Rudolf Wagner

Transportreglerne er baseret på de landsspecifikke forordninger og typen af transport.

The transport regulations depend on the country-specific provisions and on the type of transport.

Hver pakke skal være forsynet med følgende mærkater og med et følgebrev, som angivet nedenfor:

Each package must be marked with the following labels. Furthermore, it is required to enclose an accompanying note as stated below

Mærkat for transport på vej/jernbane og se

Labelling for transport by road/rail by sea



+ mærkat med afsender og modtager

+ Label stating the consignor and consignee

ADR/RID/IMDG-Code: Batteriet opfylder kravene fra Special Provision 188.

The battery meets the requirements of special provision 188.

Mærkat til fragt / luftfragt CAO

Shipping label/cargo aircraft only (CAO)



+ mærkat med afsender og modtager

+ Label stating the consignor and consignee

Følgebrev / Accompanying note : FN 3480 LITHIUM-ION-BATTERIER, 9, -, (E)

Special Provision 188

special provision 188

ICAO-TI/IATA-DGR: Emballageforskrift 965, del II eller del IB

Packing instruction 965, Part II or Part IB

Tel: +49 (0)7151-1707-0

Fax: +49 (0)7151-1707-110

Amtsgericht Stuttgart HRA 728253

Persönlich haftender Gesellschafter: Föll GmbH

Amtsgericht Stuttgart HRB260321

E-Mail: info@rems.de

Internet: www.rems.de

Geschäftsführer:

Dr.-Ing. Christoph Föll-Laubengeiger

Dr.-Ing. Rudolf Wagner

15. Bestemmelser og forordninger

Provisions and Regulations

Henvisninger til bestemmelser vedrørende transport af farligt gods:

References to provisions concerning the transport of hazardous goods:

Lov om transport af farligt gods (GGBefG)

Transportation of Dangerous Goods Act (GGBefG)

Forordning om transport af farligt gods ad landevej, jernbane og indlands-vandveje (GGVSEB)

Ordinance on the Transport of Dangerous Goods by Road, Rail and Inland Waterways (GGVSEB)

Forordning om transport af farligt gods ad søvejen (GGVSee)

Ordinance on the Transport of Dangerous Goods by Sea (GGVSee)

Lufttrafikloven (LuftVG), Licensiering af lufttrafiklicenser (LuftVZO)

Air Traffic Act (LuftVG), Air Traffic Licensing Order (LuftVZO)

Den europæiske konvention om international transport af farligt gods ad vej (ADR)

European Agreement concerning the International Carriage of Dangerous Goods by Road (ADR)

Reglement for international transport af farligt gods med jernbane (RID)

Regulation concerning the International Carriage of Dangerous Goods by Rail (RID)

Den europæiske konvention om international transport af farligt gods ad indlands-vandveje (ADN)

European Agreement concerning the International Carriage of Dangerous Goods by Inland Navigation (ADN)

Internationalt kodeks for søtransport af farligt gods (IMDG-Code)

International Maritime Dangerous Goods Code (IMDG-Code)

International Civil Aviation Organization –

Tekniske instruktioner til sikker transport af farligt gods med luft (ICAO-TI)

Technical Instructions for the Safe Transport of Dangerous Goods by Air (ICAO-TI)

International Air Transport Association –

Forordninger om farligt gods (IATA-DGR)

Dangerous Goods Regulations (IATA-DGR)

Tel: +49 (0)7151-1707-0

Fax: +49 (0)7151-1707-110

Amtsgericht Stuttgart HRA 728253

Persönlich haftender Gesellschafter: Föll GmbH

Amtsgericht Stuttgart HRB260321

E-Mail: info@rems.de

Internet: www.rems.de

Geschäftsführer:

Dr.-Ing. Christoph Föll-Laubengeiger

Dr.-Ing. Rudolf Wagner

16. Opladningsniveau i henhold til ændringen i IATA-reglerne for farligt gods fra 1. april 2016

State of Charge in Accordance with the Changes to the IATA Dangerous Goods Regulations Effective from 1 April 2016

I overensstemmelse med ændringen i IATA-reglerne for farligt gods, der trådte i kraft den 1. april 2016, bekræfter REMS GmbH & Co KG, at litiumionbatterierne (UN 3480), der blev produceret fra den 1. april 2016, transporteres med et opladningsniveau (SoC) på højst 30 % af den kapacitet, som de er beregnet til.

In accordance with the changes to the IATA Dangerous Goods Regulations, which entered into force on 1 April 2016, REMS GmbH & Co KG confirms that all lithium-ion batteries (UN 3480) manufactured from 1 April 2016 will be handed over for transportation with their state of charge (SoC) not exceeding 30% of their design capacity.

17. Andre oplysninger

Other Information

Denne information er omhyggeligt udarbejdet efter vores bedste overbevisning. REMS GmbH & Co KG udelukker enhver garanti for nøjagtighed, pålidelighed og fuldstændighed af de nævnte oplysninger! Det er brugerens ansvar at verificere, om denne information er relevant, fuldstændig og aktuel i forhold til den særlige anvendelse.

This information has been meticulously compiled to the best of our knowledge and belief. REMS GmbH & Co KG excludes any warranty whatsoever for the accuracy, reliability or completeness of the information provided herein! It is the user's responsibility to check the information's suitability, completeness and timeliness with regard to the relevant purpose of use.

Tel: +49 (0)7151-1707-0

Fax: +49 (0)7151-1707-110

Amtsgericht Stuttgart HRA 728253

Persönlich haftender Gesellschafter: Föll GmbH

Amtsgericht Stuttgart HRB260321

E-Mail: info@rems.de

Internet: www.rems.de

Geschäftsführer:

Dr.-Ing. Christoph Föll-Laubengeiger

Dr.-Ing. Rudolf Wagner

KÄYTTÖTURVALLISUUSTIEDOTE MATERIAL SAFETY DATA SHEET

Litiumioni-mangaanioksidiakku
Lithium ion manganese oxide battery

Tuotenumero: 571555 R14H / Item no.: 571555 R14H

Asetuksen (EY) N:o 1907/2006 (REACH) mukaan käyttöturvallisuustiedote pitää laatia vain aineille ja valmisteille.

Asetuksen vaatimukset eivät siten koske akkuja.

According to Regulation (EC) No. 1907/2006 (REACH), a safety data sheet must be provided solely for substances and preparations. Batteries are not affected by the requirements of this Regulation.

1. Aineen tai seoksen ja yhtiön tai yrityksen tunnistetiedot

Product Designation and Name of the Manufacturer

Tuotetunniste: <i>Identification</i>	Tuoteryhmä: <i>Product category</i>	Litiumioniakku <i>Lithium-ion battery</i>
	Tunnuskoodi: <i>Model name</i>	4S2P
	Nimellisjännite: <i>Nominal voltage</i>	14.4V
	Nennkapazität: <i>Nominal capacity</i>	5.0Ah
	Nimellisteho: <i>Nominal energy</i>	72Wh
	Kemiallinen järjestelmä: <i>Chemical system</i>	Litium-mangaanioksidi / grafiitti <i>Lithium manganese oxide / Graphite</i>
	Uudelleenladattava: <i>Rechargeable</i>	Kyllä <i>Yes</i>

Valmistaja: <i>Manufacturer</i>	Nimi ja osoite: <i>Name and address</i>	REMS GmbH & Co KG Stuttgarter Straße 81 D-71332 Waiblingen
---	---	---

Puhelin / <i>phone</i> :	+49 (0) 7151-1707-0
Faksi / <i>fax</i> :	+49 (0) 7151-7107-110
Sähköposti / <i>e-mail</i> :	info@rems.de

Tel: +49 (0)7151-1707-0

Fax: +49 (0)7151-1707-110

Amtsgericht Stuttgart HRA 728253

Persönlich haftender Gesellschafter: Föll GmbH

Amtsgericht Stuttgart HRB260321

E-Mail: info@rems.de

Internet: www.rems.de

Geschäftsführer:

Dr.-Ing. Christoph Föll-Laubengeiger

Dr.-Ing. Rudolf Wagner

2. Vaaran yksilöinti:

Possible Hazards

- Luokitus:** Litiumioniakun nimellisteho on > 100 Wh. Se on siten tiettyjen, vaarallisten aineiden kuljetusta koskevien erityismääräysten alainen.
- Classification:** *This lithium-ion battery has a nominal energy of > 100Wh, which is why it is subject to certain special provisions under the hazardous substances law.*
- Vaarat:** Litiumioniakut voivat epäasianmukaisesti käsiteltyinä syttyä tuleen, räjähtää tai aiheuttaa kemiallista korroosiota. Akuille ei saa koskaan aiheuttaa oikosulkua eikä niitä saa lävistää, heittää tuleen, murskata, upottaa veteen, syväpurkaa tai altistaa lämpötiloille, jotka ovat tuotteelle ilmoitettujen käyttölämpötilojen vastaisia. Lue käyttöohje huolellisesti. Normaalisissa käytössä akusta ei vapaudu vaarallisia aineita, eikä myrkyllisiin aineisiin voi syntyä kosketusta. Altistumisriski on olemassa vain, jos akun käsittely on (mekaanisesti, termisesti tai sähköisesti) epäasianmukaista ja johtaa turvaventtiilin käynnistymiseen ja/tai kotelon halkeamiseen. Tapahtumaan liittyvistä olosuhteista riippuen siitä voi seurata nestemäisen elektrolyytin vuoto, elektrodimateriaalien reaktio kosteuden/veden kanssa tai akun tyhjentyminen / palo / räjähdys.
- Hazards:** *When handled improperly, lithium-ion batteries may explode, or cause fire or chemical burns. Batteries must not be short-circuited, punctured, thrown into fire, crushed, immersed in water, forcibly discharged or exposed to temperatures exceeding the product's specified operating range. Please read the operating instructions thoroughly.*
The escape of and contact with any hazardous and toxic substances is not possible under normal conditions of use. A risk of exposure only exists in case of improper (mechanical, thermal, electrical) use which leads to the activation of safety valves and/or the rupture of the battery housing. Depending on the surrounding circumstances, the following might occur: electrolyte leakage, reaction of the electrode materials with moisture/water or battery venting/fire/explosion.
- Muut vaarat:** Jos akku syttyä tuleen, palossa muodostuva savu tai kaasut voivat aiheuttaa silmien, ihon ja hengitysteiden ärsytystä.
- Toxicity:** *If a battery burns, smoke or vapors are generated. These may cause eye, skin and respiratory tract irritations.*

Tel: +49 (0)7151-1707-0

Fax: +49 (0)7151-1707-110

Amtsgericht Stuttgart HRA 728253

Persönlich haftender Gesellschafter: Föll GmbH

Amtsgericht Stuttgart HRB260321

E-Mail: info@rems.de

Internet: www.rems.de

Geschäftsführer:

Dr.-Ing. Christoph Föll-Laubengeiger

Dr.-Ing. Rudolf Wagner

3. Koostumus ja tiedot aineosista

Composition and Information About the Individual Components

Akkukkenno sisältää seuraavat aineosat.

The following components are contained in the sealed cell.

Osa	Materiaalin nimi	Pitoisuuden vaihteluväli (paino-%)	CAS-rekisterinumero
Positiivinen elektrodi	Lithium transition metal oxidate Li[M]m[O]n	20~60	12190-79-3 12057-17-9 182442-95-1
Positiivisen elektrodin kanta	Alumiini	1~10	7429-90-5
Negatiivinen elektrodi	Hiili	10~30	7429-90-5
Negatiivisen elektrodin kanta	Kupari	1~15	7440-44-0
Elektrolyytti	Orgaaninen elektrolyytti muodostuu pääasiassa esteri-karbonaateista	5~25	Luottamuksellinen
Kotelon ulko-osat	Alumiini, rauta, alumiinimuovilaminaatti	1~30	7429-90-5; 7439-89-6

Component	Material name	Concentration range (wt %)	CAS number
Positive electrode	Lithium transition metal oxidate Li[M]m[O]n	20~60	12190-79-3 12057-17-9 182442-95-1
Positive electrode's base	Aluminum	1~10	7429-90-5
Negative electrode	Carbon	10~30	7429-90-5
Negative electrode's base	Copper	1~15	7440-44-0
Electrolyte	Organic electrolyte principally involves ester carbo- nate	5~25	Confidential
Outer case	Aluminum, iron, aluminum laminated plastic	1~30	7429-90-5; 7439-89-6

Tel: +49 (0)7151-1707-0

Fax: +49 (0)7151-1707-110

Amtsgericht Stuttgart HRA 728253

Persönlich haftender Gesellschafter: Föll GmbH

Amtsgericht Stuttgart HRB260321

E-Mail: info@rems.de

Internet: www.rems.de

Geschäftsführer:

Dr.-Ing. Christoph Föll-Laubengeiger

Dr.-Ing. Rudolf Wagner

4. Ensiaputoimenpiteet

First Aid Measures

Kohdassa 3 ilmoitetut kemialliset aineet on pakattu umpinaiseen koteloon, josta ne eivät normaalissa käytössä pääse ulos. Aineiden vuotamisen vaara on olemassa vain, jos kotelolle aiheutetaan mekaanista vahinkoa.

The chemicals are contained in a sealed housing so that they cannot escape during normal use. Leakage may only be caused as a result of mechanical damage to the housing.

Jos akusta vuotaa aineita, noudata seuraavia ohjeita:

If chemicals do leak, the following must be observed:

Ainetta hengitetty: Akusta vuotavat kaasut voivat aiheuttaa hengitysteiden ärsytystä. Tuuletettava heti tai mentävä raittiiseen ilmaan, vakavissa tapauksissa otettava heti yhteys lääkäriin.

Inhalation:

Escaping gases may cause respiratory tract irritation.

Immediately ventilate or leave the room to get into fresh air. In more serious cases, call a doctor immediately.

Aine koskettanut ihoa: Voi aiheuttaa ihon ärsytystä. Iho pestävä huolellisesti vedellä ja saippualla.

Skin contact:

Skin irritations may occur. Thoroughly wash the skin with soap and water.

Ainetta mennyt silmään: Voi aiheuttaa silmien ärsytystä. Silmiä huuhdeltava heti perusteellisesti 15 minuutin ajan vedellä, sitten käytävä lääkärissä.

Eye contact:

Eye irritations may occur. Immediately and thoroughly rinse the eyes with water for 15 minutes then seek medical assistance.

5. Palontorjuntatoimenpiteet

Fire Fighting Measures

Sammutusaineet: Käytä ainoastaan paloluokan D sammutusaineita (sammutusjauheita).

In case of fire:

Only use Class D (dry powder) fire extinguishers.

Varoitus:

Siirry ennen sammutustöiden aloittamista tulen tuulenpuoleiselle puolelle. Silloin et hengitä myrkyllisiä kaasuja.

Caution:

Before you start extinguishing the fire, be sure to go to the side of the fire from which the wind is coming. In this way, you will not inhale any toxic vapours.

Tel: +49 (0)7151-1707-0

Fax: +49 (0)7151-1707-110

Amtsgericht Stuttgart HRA 728253

Persönlich haftender Gesellschafter: Föll GmbH

Amtsgericht Stuttgart HRB260321

E-Mail: info@rems.de

Internet: www.rems.de

Geschäftsführer:

Dr.-Ing. Christoph Föll-Laubengeiger

Dr.-Ing. Rudolf Wagner

6. Toimenpiteet onnettomuuspäästöissä





Measures to Be Implemented in Case of Accidental Leakage

Akusta vuotanut nestemäinen elektrolyytti tulee imeyttää imukykyiseen liinaan.

Leaked electrolyte fluid should be wiped up with an absorbent cloth.

Jos elektrolyyttiä on vuotanut runsaasti, on käytettävä seuraavia suojaimia:

Personal protective equipment should be worn in case of larger leakages:

-  **suojavaatetus**
protective clothing
-  **kaasunsuodatinsuojain joka suojaa orgaanisilta kaasuilta**
gas mask for protection against organic gases
-  **suojalasit**
safety goggles
-  **suojakäsineet**
protective gloves

7. Käsittely ja varastointi

Handling and Storage

- Käsittely:** Akkua ei saa avata, murskata, purkaa osiin, pudottaa korkealta tai juottaa.
Handling: *Neither open, crush nor disassemble the battery, nor let it drop from a great height nor solder anything onto it.*
- Lataaminen:** Akku on ladattava lämpötilassa 0 °C ... +45 °C. Lataamiseen saa käyttää vain sitä varten tarkoitettua laturia.
Charging: *The charging temperature must be between +32 °F and +113 °F. Only use the charger designated for this battery.*
- Purkaminen:** Akku on purettava lämpötilassa -20 °C ... +60 °C.
Discharging: *The battery may only be discharged at temperatures from -4 °F to +140 °F.*
- Varoitus:** Vääränlainen käsittely voi aiheuttaa räjähdyksen tai tulipalon!
Caution: *Improper handling may cause fire or explosion!*
- Varastointi:**
Storage:
- | | |
|-----------------|--|
| Lämpötila: | -20 °C - +40 °C alle 3 kuukautta |
| Temperature: | -4 °F to +104 °F, for less than 3 months |
| Ilmankosteus: | 0 % - 80 % |
| Humidity range: | 0 % to 80 % |
- Varastotilassa pitää olla hyvä ilmanvaihto. / *Store in a well-ventilated place.*
Oikosulku voi aiheuttaa tulipalon. / *Short circuits may cause fires.*
Akkuja ei saa säilyttää muiden metalliesineiden kanssa. / *Do not store along with other metal objects.*

Tel: +49 (0)7151-1707-0

Fax: +49 (0)7151-1707-110

Amtsgericht Stuttgart HRA 728253

Persönlich haftender Gesellschafter: Föll GmbH

Amtsgericht Stuttgart HRB260321

E-Mail: info@rems.de

Internet: www.rems.de

Geschäftsführer:

Dr.-Ing. Christoph Föll-Laubengeiger

Dr.-Ing. Rudolf Wagner

8. Altistumisen ehkäiseminen ja henkilönsuojaimet

Monitoring of the Stored Goods and Personal Protective Equipment

Kohdassa 7 annetut ohjeet on huomioitava. Varastointilämpötilaa on valvottava jatkuvasti sen varmistamiseksi, että lämpötila pysyy sallituissa rajoissa. Lisäksi on varmistettava hyvä ilmanvaihto ja ilmankosteuden pysyminen sallituissa rajoissa. Akun normaalissa käsittelyssä ei tarvita henkilönsuojaimia.

Observe the information stated in Section 7. Continuously monitor the storage temperature so as to ensure that it is within the specified limits. Apart from that, it is required to ensure good ventilation and that the humidity does not exceed the specified limits. No protective equipment is required during normal handling.

9. Fysikaaliset ja kemialliset ominaisuudet

Physical and Chemical Properties

Olomuoto:	8 kennoa kotelossa
<i>Appearance:</i>	<i>Housing with 8 cells</i>
Paino:	520 g
<i>Weight:</i>	<i>520 g</i>
Kemialliset ominaisuudet:	katso kohta 3
<i>Chemical properties:</i>	<i>see Section 3</i>

10. Stabiilisuus ja reaktiivisuus

Stability and Reactivity

Yli 12 kuukautta kestävä varastoinnin seurauksena akun kapasiteetti pienenee ja sen odotettavissa oleva käyttöikä lyhenee. Jos akusta vuotaa elektrolyyttiä, kotelo vahingoittuu sisältä käsin.

Storage periods of more than 12 months will decrease the battery's capacity and expected lifespan. Electrolyte leakages may damage the housing on the inside.

11. Myrkyllisyyteen liittyvät tiedot

Toxicological Information

Normaalisti käsiteltynä akusta ei vuoda vaarallisia aineita eikä myrkyllisiin aineisiin voi siten syntyä kosketusta.

The escape of and contact with any hazardous and toxic substances is not possible under normal conditions of use.

Tel: +49 (0)7151-1707-0

Fax: +49 (0)7151-1707-110

Amtsgericht Stuttgart HRA 728253

Persönlich haftender Gesellschafter: Föll GmbH

Amtsgericht Stuttgart HRB260321

E-Mail: info@rems.de

Internet: www.rems.de

Geschäftsführer:

Dr.-Ing. Christoph Föll-Laubengeiger

Dr.-Ing. Rudolf Wagner

12. Tiedot vaarallisuudesta ympäristölle

Environment-Related Information

Normaalisti käsiteltynä akku ei vahingoita ympäristöä. Akku on kuitenkin käyttöikänsä lopussa hävitettävä muusta jätteestä erillään ja toimitettava erityiseen keräyspisteeseen, koska se sisältää vaarallisia aineita. Katso kohta 13.

Provided that the battery is handled properly, environmental pollution does not occur. After use, however, the battery must be disposed of separately as it contains hazardous chemicals. See Section 13.

13. Jätteiden käsittelyyn liittyvät näkökohdat

Disposal Instructions

Akku on myrkkijätettä.

Akku pitää aina palauttaa sitä varten tarkoitettua palautusjärjestelmää käyttämällä.

Akkua ei koskaan saa hävittää kotitalousjätteen mukana.

Batteries are classified as hazardous waste.

The battery may only be disposed of by returning it to an authorized collection point.

It is prohibited to dispose of the battery with normal household waste.

14. Kuljetustiedot

Transportation information

Yleistä:

General explanation

Tämän tuotteen kuljetus lentoteitse, maanteitse, rautateitse tai meritse on rajoittavien määräysten alainen. Kyseiset rajoitukset esitetään alla. Koska lainsäädäntöön tehdään aika ajoin muutoksia, kuljettajan on varmistettava, että tuotteet kuljetetaan kulloinkin voimassa olevien ja sovellettavien määräysten mukaisesti. Jos haluat tarkempia neuvoja, ota yhteyttä tuotteen valmistajaan.

Restrictive regulations are applicable to the product's transport by air, road, rail or sea. Below you will find references to these regulations. As these laws are subject to frequent changes, the transport company shall ensure that the products are transported according to the regulations applicable at the time of shipment. Please contact the manufacturer of the products if you need any assistance in this matter.

Akun kuljetus suositusten UN 3480/3481 (1) mukaisesti.

Akkuun tulee soveltaa säännöksiä, jotka koskevat akkuja, joiden nimelliskapasiteetti on alle 100 Wh.

Transportation of the battery according to Directive UN 3480/3481 (1).

The regulations for batteries with nominal energy ≤ 100 Wh have to be used.

Akku **on** suojattava oikosululta.

The battery **must** be protected against short circuits.

Tel: +49 (0)7151-1707-0

Fax: +49 (0)7151-1707-110

Amtsgericht Stuttgart HRA 728253

Persönlich haftender Gesellschafter: Föll GmbH

Amtsgericht Stuttgart HRB260321

E-Mail: info@rems.de

Internet: www.rems.de

Geschäftsführer:

Dr.-Ing. Christoph Föll-Laubengeiger

Dr.-Ing. Rudolf Wagner

Kuljetusmääräykset riippuvat maantieteellisestä alueesta ja käytettävästä kuljetustavasta.

The transport regulations depend on the country-specific provisions and on the type of transport.

Jokainen kolli on merkittävä seuraavilla tarroilla ja varustettava seuraavalla saatteella:

Each package must be marked with the following labels. Furthermore, it is required to enclose an accompanying note as stated below

Tarra maantie-/rautatiekuljetuksiin ja Merikuljetus

Labelling for transport by road/rail and sea



+ Osoitetarra lähettäjän ja vastaanottajan tiedoilla

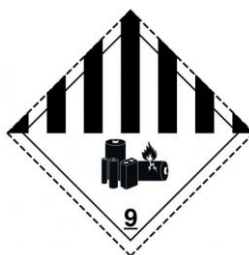
+ *Label stating the consignor and consignee*

ADR/RID/IMDG-Code: Akku täyttää erityissäännöksen 188 vaatimukset.

The battery meets the requirements of special provision 188.

Lähetystarra/lentorahti CAO

Shipping label/cargo aircraft only (CAO)



+ Osoitetarra lähettäjän ja vastaanottajan tiedoilla

+ *Label stating the consignor and consignee*

Saate / *Accompanying note:* UN 3480 LITHIUM-ION BATTERIES, 9, -, (E)

erityissäännöksen 188

special provision 188

ICAO-TI/IATA-DGR: Pakkausohjeet 965, osa II tai osa IB

Packing instruction 965, Part II or Part IB

Tel: +49 (0)7151-1707-0

Fax: +49 (0)7151-1707-110

Amtsgericht Stuttgart HRA 728253

Persönlich haftender Gesellschafter: Föll GmbH

Amtsgericht Stuttgart HRB260321

E-Mail: info@rems.de

Internet: www.rems.de

Geschäftsführer:

Dr.-Ing. Christoph Föll-Laubengeiger

Dr.-Ing. Rudolf Wagner

15. Lainsäädäntöä koskevat tiedot

Provisions and Regulations

Viittaukset vaarallisten aineiden kuljetusta koskeviin määräyksiin:

References to provisions concerning the transport of hazardous goods

Laki vaarallisten aineiden kuljetuksesta (GGBefG)

Transportation of Dangerous Goods Act (GGBefG)

Asetus vaarallisten aineiden kuljettamisesta tie-, rautatie- ja sisävesiväylillä (GGVSEB)

Ordinance on the Transport of Dangerous Goods by Road, Rail and Inland Waterways (GGVSEB)

Asetus vaarallisten aineiden merikuljetuksista (GGVSee)

Ordinance on the Transport of Dangerous Goods by Sea (GGVSee)

Ilmailulaki (LuftVG), Lentoliikenteen lisensointi (LuftVZO)

Air Traffic Act (LuftVG), Air Traffic Licensing Order (LuftVZO)

Eurooppalainen sopimus vaarallisten tavaroiden kansainvälisistä tiekuljetuksista (ADR)

European Agreement concerning the International Carriage of Dangerous Goods by Road (ADR)

Asetus vaarallisten aineiden kansainvälisestä rautatiekuljetuksesta (RID)

Regulation concerning the International Carriage of Dangerous Goods by Rail (RID)

Eurooppalainen sopimus vaarallisten aineiden kansainvälisistä sisävesikuljetuksista (ADN)

European Agreement concerning the International Carriage of Dangerous Goods by Inland Navigation (ADN)

Kansainväliset vaarallisia aineita koskevat merikuljetussäännöt (IMDG-Code)

International Maritime Dangerous Goods Code (IMDG-Code)

International Civil Aviation Organization –

Tekniset ohjeet vaarallisten aineiden turvalliselle ilmakuljetukselle (ICAO-TI)

Technical Instructions for the Safe Transport of Dangerous Goods by Air (ICAO-TI)

International Air Transport Association –

Vaarallisia aineita koskevat määräykset (IATA-DGR)

Dangerous Goods Regulations (IATA-DGR)

Tel: +49 (0)7151-1707-0

Fax: +49 (0)7151-1707-110

Amtsgericht Stuttgart HRA 728253

Persönlich haftender Gesellschafter: Föll GmbH

Amtsgericht Stuttgart HRB260321

E-Mail: info@rems.de

Internet: www.rems.de

Geschäftsführer:

Dr.-Ing. Christoph Föll-Laubengeiger

Dr.-Ing. Rudolf Wagner

16. Varaustila IATA:n vaarallisia aineita koskeviin määräyksiin tehdyn muutoksen mukaisesti 1. huhtikuuta 2016 alkaen

State of Charge in Accordance with the Changes to the IATA Dangerous Goods Regulations Effective from 1 April 2016

REMS GmbH & Co KG vahvistaa IATA:n vaarallisia aineita koskevien määräysten 1. huhtikuuta 2016 voimaan astuneen muutoksen mukaisesti, että kuljetukseen luovutetaan 1. huhtikuuta 2016 alkaen valmistettuja litiumioniakkuja (UN 3480), joiden varaustila (SoC) on korkeintaan 30 % nimelliskapasiteetista.

In accordance with the changes to the IATA Dangerous Goods Regulations, which entered into force on 1 April 2016, REMS GmbH & Co KG confirms that all lithium-ion batteries (UN 3480) manufactured from 1 April 2016 will be handed over for transportation with their state of charge (SoC) not exceeding 30% of their design capacity.

17. Muut tiedot

Other information

Nämä tiedot on koottu mahdollisimman huolellisesti ja johdonmukaisesti. REMS GmbH & Co. KG ei kuitenkaan voi taata esitettyjen tietojen tarkkuutta, luotettavuutta eikä täydellisyyttä. On käyttäjän vastuulla tarkastaa näiden tietojen soveltuvuus, täydellisyys ja ajantasaisuus oman käyttökohteensa osalta.

This information has been meticulously compiled to the best of our knowledge and belief. REMS GmbH & Co KG excludes any warranty whatsoever for the accuracy, reliability or completeness of the information provided herein! It is the user's responsibility to check the information's suitability, completeness and timeliness with regard to the relevant purpose of use.

Tel: +49 (0)7151-1707-0

Fax: +49 (0)7151-1707-110

Amtsgericht Stuttgart HRA 728253

Persönlich haftender Gesellschafter: Föll GmbH

Amtsgericht Stuttgart HRB260321

E-Mail: info@rems.de

Internet: www.rems.de

Geschäftsführer:

Dr.-Ing. Christoph Föll-Laubengeiger

Dr.-Ing. Rudolf Wagner

FICHA DE DADOS DE SEGURANÇA DO PRODUTO MATERIAL SAFETY DATA SHEET

Bateria de íão-lítio e de óxido de manganésio
Lithium ion manganese oxide battery

Artigo nº: 571555 R14H / Item no.: 571555 R14H

Conforme Regulamento (CE) nº 1907/2006 (Reach) deve ser fornecida uma ficha de dados de segurança apenas para as substâncias e preparados. As baterias não são afetadas pelos requisitos do presente regulamento.

According to Regulation (EC) No. 1907/2006 (REACH), a safety data sheet must be provided solely for substances and preparations. Batteries are not affected by the requirements of this Regulation.

1. Identificação da substância e do fabricante

Product Designation and Name of the Manufacturer

Identificação:

Identification

Categoria do Produto: Bateria de íão-lítio

Product category Lithium-ion battery

Nome do Modelo: 4S2P

Model name

Tensão Nominal: 14.4V

Nominal voltage

Potência Nomina: 5.0Ah

Nominal capacity

Energia Nominal: 72Wh

Nominal energy

Sistema químico: Óxido manganoso-Lítio/ Grafite

Chemical system

Lithium manganese oxide / Graphite

Recarregável: Sim

Rechargeable

Yes

Fabricante:

Manufacturer

Nome e endereço:

Name and address

REMS GmbH & Co KG

Stuttgarter Straße 83

D-71332 Waiblingen

Telefone / phone:

+49 (0) 7151/ 1707-0

Fax / fax:

+49 (0) 7151/ 1707-110

E-mail / e-mail:

info@rems.de

Tel: +49 (0)7151-1707-0

Fax: +49 (0)7151-1707-110

Amtsgericht Stuttgart HRA 728253

Persönlich haftender Gesellschafter: Föll GmbH

Amtsgericht Stuttgart HRB260321

E-Mail: info@rems.de

Internet: www.rems.de

Geschäftsführer:

Dr.-Ing. Christoph Föll-Laubengeiger

Dr.-Ing. Rudolf Wagner

2. Identificação dos perigos:

Possible Hazards:

Classificação: Esta bateria recarregável de íão-lítio tem um valor nominal de energia de >100Wh. Há disposições específicas nas diferentes normas de transporte.

Classification: *This lithium-ion battery has a nominal energy of > 100Wh, which is why it is subject to certain special provisions under the hazardous substances law.*

Perigos: As baterias de íão-lítio podem apresentar um risco de incêndio, de explosão ou de queimaduras químicas, caso forem tratadas inadequadamente. Não deixar entrar em curto-circuito, não perfurar, não incinerar, não esmagar, não submergir em água, não forçar a descarga nem expor a temperaturas acima do limite declarado como temperatura funcional do produto. Leia as instruções atentamente. Em condições normais de utilização, não há riscos de materiais perigosos vazarem ou de contato direto com os mesmos. Risco de exposição somente em caso de excessos (sejam mecânicos, térmicos ou elétricos) o que leva à ativação das válvulas de segurança e/ou ao rompimento do invólucro da bateria. Dependendo das circunstâncias, poderá suceder uma fuga de eletrólitos, reação dos materiais elétrodos com água/humidade ou com ventilação/incêndio/explosão da bateria.

Hazards: *When handled improperly, lithium-ion batteries may explode, or cause fire or chemical burns. Batteries must not be short-circuited, punctured, thrown into fire, crushed, immersed in water, forcibly discharged or exposed to temperatures exceeding the product's specified operating range. Please read the operating instructions thoroughly.*
The escape of and contact with any hazardous and toxic substances is not possible under normal conditions of use. A risk of exposure only exists in case of improper (mechanical, thermal, electrical) use which leads to the activation of safety valves and/or the rupture of the battery housing. Depending on the surrounding circumstances, the following might occur: electrolyte leakage, reaction of the electrode materials with moisture/water or battery venting/fire/explosion.

Toxicidade: Se uma bateria queimar, os vapores podem causar irritação nos olhos, na pele e no aparelho respiratório.

Toxicity: *If a battery burns, smoke or vapors are generated. These may cause eye, skin and respiratory tract irritations.*

Tel: +49 (0)7151-1707-0

Fax: +49 (0)7151-1707-110

Amtsgericht Stuttgart HRA 728253

Persönlich haftender Gesellschafter: Föll GmbH

Amtsgericht Stuttgart HRB260321

E-Mail: info@rems.de

Internet: www.rems.de

Geschäftsführer:

Dr.-Ing. Christoph Föll-Laubengeiger

Dr.-Ing. Rudolf Wagner

3. Composição e informações sobre ingredientes

Composition and Information About the Individual Components

A bateria contém os seguintes elementos.

The following components are contained in the sealed cell.

Componente	Nome da matéria	Margem de concentração (peso %)	Número de registo CAS
Eléctrodo positivo	Transição de lítio metal oxidado Li[M]m[O]n	20~60	12190-79-3 12057-17-9 182442-95-1
Base do eléctrodo positivo	Alumínio	1~10	7429-90-5
Eléctrodo negativo	Carbono	10~30	7429-90-5
Base do eléctrodo negativo	Cobre	1~15	7440-44-0
Eletrólito	Eletrólito orgânico envolve principalmente éster carbonato	5~25	Informação confidencial
Invólucro exterior	Alumínio, ferro, Plástico laminado de alumínio	1~30	7429-90-5; 7439-89-6

Component	Material name	Concentration range (wt %)	CAS number
Positive electrode	Lithium transition metal oxidate Li[M]m[O]n	20~60	12190-79-3 12057-17-9 182442-95-1
Positive electrode's base	Aluminum	1~10	7429-90-5
Negative electrode	Carbon	10~30	7429-90-5
Negative electrode's base	Copper	1~15	7440-44-0
Electrolyte	Organic electrolyte principally involves ester carbonate	5~25	Confidential
Outer case	Aluminum, iron, aluminum laminated plastic	1~30	7429-90-5; 7439-89-6

Tel: +49 (0)7151-1707-0

Fax: +49 (0)7151-1707-110

Amtsgericht Stuttgart HRA 728253

Persönlich haftender Gesellschafter: Föll GmbH

Amtsgericht Stuttgart HRB260321

E-Mail: info@rems.de

Internet: www.rems.de

Geschäftsführer:

Dr.-Ing. Christoph Föll-Laubengeiger

Dr.-Ing. Rudolf Wagner

4. Medidas de primeiros socorros

First Aid Measures

Os produtos químicos enumerados no ponto 3 encontram-se num invólucro selado de forma a não poder haver fugas durante o uso normal. O risco de fugas é apenas devido a danos mecânicos do invólucro.

The chemicals stated in Section 3 are contained in a sealed housing so that they cannot escape during normal use. Leakage may only be caused as a result of mechanical damage to the housing.

Se houver fugas de produtos químicos siga as instruções:

If chemicals do leak, the following must be observed

Inalação:	O conteúdo de uma bateria aberta pode causar irritação no sistema respiratório. Procure ar fresco e chame um médico.
<i>Inhalation:</i>	<i>Escaping gases may cause respiratory tract irritation. Immediately ventilate or leave the room to get into fresh air. In more serious cases, call a doctor immediately.</i>
Contacto com a pele:	O conteúdo de uma bateria aberta pode causar irritação na pele. Lave a pele com água e sabão.
<i>Skin contact:</i>	<i>Skin irritations may occur. Thoroughly wash the skin with soap and water.</i>
Contacto com os olhos:	O conteúdo de uma bateria aberta pode causar irritação nos olhos. Lavar imediatamente os olhos com todo o cuidado durante 15 minutos e procurar atendimento médico.
<i>Eye contact:</i>	<i>Eye irritations may occur. Immediately and thoroughly rinse the eyes with water for 15 minutes then seek medical assistance.</i>

5. Medidas de combate a incêndio

Fire Fighting Measures

Em caso de incêndio:	Utilize apenas extintor de incêndio da classe D (pó seco).
<i>In case of fire:</i>	<i>Only use Class D (dry powder) fire extinguishers.</i>
Atenção:	Antes de começar a apagar o fogo, certifique-se de que está do lado de onde sopra o vento. Dessa forma não inalará vapores tóxicos.
<i>Caution:</i>	<i>Before you start extinguishing the fire, be sure to go to the side of the fire from which the wind is coming. In this way, you will not inhale any toxic vapours.</i>

Tel: +49 (0)7151-1707-0

Fax: +49 (0)7151-1707-110

Amtsgericht Stuttgart HRA 728253

Persönlich haftender Gesellschafter: Föll GmbH

Amtsgericht Stuttgart HRB260321

E-Mail: info@rems.de

Internet: www.rems.de

Geschäftsführer:

Dr.-Ing. Christoph Föll-Laubengeiger

Dr.-Ing. Rudolf Wagner

6. Medidas em caso de fugas acidentais





Measures to Be Implemented in Case of Accidental Leakage

Limpe bem a fuga de fluido de eletrólito com um pano absorvente.

Leaked electrolyte fluid should be wiped up with an absorbent cloth.

Se a fuga de fluido de eletrólito for em grande quantidade, você deve usar:

Personal protective equipment should be worn in case of larger leakages:

-  **vestuário de proteção**
protective clothing
-  **máscara de gás para gases orgânicos**
gas mask for protection against organic gases
-  **óculos de proteção**
safety goggles
-  **luvas de proteção**
protective gloves

7. Manuseamento e armazenagem

Handling and Storage

Manuseamento: Não abrir a bateria. Não esmague, não desmonte, não deixe cair nem faça qualquer soldagem.

Handling: *Neither open, crush nor disassemble the battery, nor let it drop from a great height nor solder anything onto it.*

Carregamento: Carregar somente dentro dos limites de temperatura de 0°C a 45°C.

Carregamento apenas por meio de carregador designado especificamente para esta bateria.

Charging: *The charging temperature must be between +32 °F and +113 °F.*

Only use the charger designated for this battery.

Descarga: Descarregar somente dentro dos limites de -20°C a 60°C de temperatura.

Discharging: *The battery may only be discharged at temperatures from -4 °F to +140 °F.*

Atenção: Manuseamento incorreto pode causar incêndio ou explosão!

Caution: *Improper handling may cause fire or explosion!*

Armazenamento: Temperatura: -20 °C a +40 °C durante menos de 3 meses /

Storage: *Temperature: -4 °F to +104°F, for less than 3 months*

Humidade: 0 % a 80 %

Humidity range: 0 % to 80 %

A área deve ser bem ventilada. / *Store in a well-ventilated place.*

Um curto-circuito pode provocar um incêndio. / *Short circuits may cause fires.*

As baterias não devem ser armazenadas com outros objetos metálicos. / *Do not store along with other metal objects.*

Tel: +49 (0)7151-1707-0

Fax: +49 (0)7151-1707-110

Amtsgericht Stuttgart HRA 728253

Persönlich haftender Gesellschafter: Föll GmbH

Amtsgericht Stuttgart HRB260321

E-Mail: info@rems.de

Internet: www.rems.de

Geschäftsführer:

Dr.-Ing. Christoph Föll-Laubengeiger

Dr.-Ing. Rudolf Wagner

8. Controle de produtos armazenados e proteção pessoal

Monitoring of the Stored Goods and Personal Protective Equipment

As recomendações que constam no ponto 7 devem ser observadas. A temperatura de armazenamento deve permanecer continuamente dentro dos limites. Da mesma forma, uma boa ventilação e humidade devem ser asseguradas dentro dos limites. Para o uso normal das baterias não é exigido qualquer equipamento de proteção.

Observe the information stated in Section 7. Continuously monitor the storage temperature so as to ensure that it is within the specified limits. Apart from that, it is required to ensure good ventilation and that the humidity does not exceed the specified limits. No protective equipment is required during normal handling.

9. Propriedades físicas e químicas

Physical and Chemical Properties

Aspecto:	8 células contidas no invólucro
<i>Appearance:</i>	<i>Housing with 8 cells</i>
Peso:	520 g
<i>Weight:</i>	<i>520 g</i>
Propriedades químicas:	Ver o ponto 3
<i>Chemical properties:</i>	<i>see Section 3</i>

10. Estabilidade e reatividade

Stability and Reactivity

Durante um armazenamento de mais de 12 meses, a capacidade da bateria será reduzida e o tempo de vida útil será menor. Se em algum caso ou circunstância ocorrer o vazamento do eletrólito, o invólucro de plástico pode ser danificado.

Storage periods of more than 12 months will decrease the battery's capacity and expected lifespan. Electrolyte leakages may damage the housing on the inside.

11. Informação toxicológica

Toxicological Information

Em condições normais de utilização não haverá fugas e, por isso, não haverá contato com ingredientes tóxicos da bateria.

The escape of and contact with any hazardous and toxic substances is not possible under normal conditions of use.

Tel: +49 (0)7151-1707-0

Fax: +49 (0)7151-1707-110

Amtsgericht Stuttgart HRA 728253

Persönlich haftender Gesellschafter: Föll GmbH

Amtsgericht Stuttgart HRB260321

E-Mail: info@rems.de

Internet: www.rems.de

Geschäftsführer:

Dr.-Ing. Christoph Föll-Laubengeiger

Dr.-Ing. Rudolf Wagner

12. Informação ambiental

Environment-Related Information

No caso de uso normal da bateria, não ocorre poluição ambiental. No entanto, a bateria contém substâncias químicas que podem pôr em perigo o meio ambiente. Ao descartar baterias usadas siga sempre as instruções conforme descritas no ponto 13.

Provided that the battery is handled properly, environmental pollution does not occur. After use, however, the battery must be disposed of separately as it contains hazardous chemicals. See Section 13.

13. Considerações relativas ao descarte

Disposal Instructions

A bateria é um resíduo perigoso.

A bateria deve ser descartada de acordo com as normas de reciclagem.

Não é permitido descartar baterias no lixo comum.

Batteries are classified as hazardous waste.

The battery may only be disposed of by returning it to an authorized collection point.

It is prohibited to dispose of the battery with normal household waste.

14. Informações relativas ao transporte

Transportation information

Informações gerais

General explanation

Há regulamentos limitativos para a expedição de mercadorias por via aérea, rodoviária, ferroviária ou marítima. Referências a estas normas podem ser encontradas abaixo. Uma vez que a legislação está sujeita a mudanças frequentes, o transportador deve assegurar-se de que as mercadorias sejam transportadas segundo a legislação válida e aplicável no momento do envio. Se necessário, entre em contato com o fabricante para assistência em relação a estas questões.

Restrictive regulations are applicable to the product's transport by air, road, rail or sea. Below you will find references to these regulations. As these laws are subject to frequent changes, the transport company shall ensure that the products are transported according to the regulations applicable at the time of shipment. Please contact the manufacturer of the products if you need any assistance in this matter.

Transporte da bateria de acordo com a diretiva UN 3480/3481 (1).

Os regulamentos para baterias com uma potência nominal ≤ 100 Wh devem ser aplicados.

Transportation of the battery according to Directive UN 3480/3481 (1).

The regulations for batteries with nominal energy ≤ 100 Wh have to be used.

A bateria **deve** ser protegida contra curto-circuitos.

The battery **must** be protected against short circuits.

Tel: +49 (0)7151-1707-0
Fax: +49 (0)7151-1707-110
Amtsgericht Stuttgart HRA 728253
Persönlich haftender Gesellschafter: Föll GmbH
Amtsgericht Stuttgart HRB260321

E-Mail: info@rems.de
Internet: www.rems.de
Geschäftsführer:
Dr.-Ing. Christoph Föll-Laubengeiger
Dr.-Ing. Rudolf Wagner

O regulamento de transporte depende da região e da modalidade de transporte.

The transport regulations depend on the country-specific provisions and on the type of transport.

Cada pacote tem de ser assinalado com os autocolantes seguintes e deve ter uma guia de remessa anexada, como abaixo indicado:

Each package must be marked with the following labels. Furthermore, it is required to enclose an accompanying note as stated below

Autocolantes para transporte por estrada/caminhos de ferro e ver
Labelling for transport by road/rail and sea



+ Autocolante com remetente e destinatário
+ Label stating the consignor and consignee

ADR/RID/IMDG-Code: A bateria preenche os requisitos do regulamento especial 188.
The battery meets the requirements of special provision 188.

Autocolante para o envio / avião de carga CAO
Shipping label/cargo aircraft only (CAO)



+ Autocolante com remetente e destinatário
+ Label stating the consignor and consignee

Guia de remessa / *Accompanying note:* UN 3480 LITHIUM-ION BATTERIES, 9, -, (E)

Regulamento especial 188
special provision 188

ICAO-TI/IATA-DGR: Instruções de embalagem 965, Secção II ou Secção IB
Packing instruction 965, Part II or Part IB

Tel: +49 (0)7151-1707-0

Fax: +49 (0)7151-1707-110

Amtsgericht Stuttgart HRA 728253

Persönlich haftender Gesellschafter: Föll GmbH

Amtsgericht Stuttgart HRB260321

E-Mail: info@rems.de

Internet: www.rems.de

Geschäftsführer:

Dr.-Ing. Christoph Föll-Laubengeiger

Dr.-Ing. Rudolf Wagner

15. Regulamentos e regras

Provisions and Regulations

Indicações sobre regulamentos relativos ao transporte de mercadorias perigosas:

References to provisions concerning the transport of hazardous goods:

Lei de transporte de mercadorias perigosas (GGBefG)

Transportation of Dangerous Goods Act (GGBefG)

Portaria relativa ao transporte de mercadorias perigosas por via rodoviária, ferroviária e fluvial (GGVSEB)

Ordinance on the Transport of Dangerous Goods by Road, Rail and Inland Waterways (GGVSEB)

Portaria relativa ao transporte marítimo de mercadorias perigosas (GGVSee)

Ordinance on the Transport of Dangerous Goods by Sea (GGVSee)

Lei de tráfego aéreo (LuftVG), Ordem de licenciamento de tráfego aéreo (LuftVZO)

Air Traffic Act (LuftVG), Air Traffic Licensing Order (LuftVZO)

Acordo europeu relativo ao transporte internacional rodoviário de mercadorias perigosas (ADR)

European Agreement concerning the International Carriage of Dangerous Goods by Road (ADR)

Ordem para o transporte internacional ferroviário de mercadorias perigosas (RID)

Regulation concerning the International Carriage of Dangerous Goods by Rail (RID)

Acordo europeu relativo ao transporte internacional de mercadorias perigosas por navegação interior (ADN)

European Agreement concerning the International Carriage of Dangerous Goods by Inland Navigation (ADN)

Código internacional para o transporte de substâncias perigosas por navios de mar (IMDG-Code)

International Maritime Dangerous Goods Code (IMDG-CODE)

Organização Internacional de Aviação Civil--

Regulamentos técnicos para o transporte aéreo de mercadorias perigosas (ICAO-TI)

Technical Instructions for the Safe Transport of Dangerous Goods by Air (ICAO-TI)

International Air Transport Association--

Regulamentos para o transporte de mercadorias perigosas (IATA-DGR)

Dangerous Goods Regulations (IATA-DGR)

Tel: +49 (0)7151-1707-0

Fax: +49 (0)7151-1707-110

Amtsgericht Stuttgart HRA 728253

Persönlich haftender Gesellschafter: Föll GmbH

Amtsgericht Stuttgart HRB260321

E-Mail: info@rems.de

Internet: www.rems.de

Geschäftsführer:

Dr.-Ing. Christoph Föll-Laubengeiger

Dr.-Ing. Rudolf Wagner

16. Estado de carregamento de acordo com alteração dos regulamentos de mercadorias perigosas IATA a partir de 1 de Abril de 2016

State of Charge in Accordance with the Changes to the IATA Dangerous Goods Regulations Effective from 1 April 2016

De acordo com a alteração da regulação de mercadorias perigosas da IATA, que entrou em vigor a 1 de abril de 2016. REMS GmbH & Co KG confirma que a partir de 1 de abril de 2016 todas as baterias de íões de lítio fabricadas são enviadas apenas com um estado de carga (SoC) de no máximo 30% da sua capacidade.

In accordance with the changes to the IATA Dangerous Goods Regulations, which entered into force on 1 April 2016, REMS GmbH & Co KG confirms that all lithium-ion batteries (UN 3480) manufactured from 1 April 2016 will be handed over for transportation with their state of charge (SoC) not exceeding 30% of their design capacity.

17. Outras informações

Other information

Estes dados foram compilados meticulosamente com o melhor do nosso conhecimento e convicção.

No entanto, a REMS GmbH & Co KG exclui qualquer garantia quanto à exatidão, confiabilidade ou integridade das informações contidas. É de responsabilidade do utilizador certificar-se quanto à idoneidade, integridade e relevância destas informações para seu uso particular.

This information has been meticulously compiled to the best of our knowledge and belief. REMS GmbH & Co KG excludes any warranty whatsoever for the accuracy, reliability or completeness of the information provided herein! It is the user's responsibility to check the information's suitability, completeness and timeliness with regard to the relevant purpose of use.

Tel: +49 (0)7151-1707-0

Fax: +49 (0)7151-1707-110

Amtsgericht Stuttgart HRA 728253

Persönlich haftender Gesellschafter: Föll GmbH

Amtsgericht Stuttgart HRB260321

E-Mail: info@rems.de

Internet: www.rems.de

Geschäftsführer:

Dr.-Ing. Christoph Föll-Laubengeiger

Dr.-Ing. Rudolf Wagner

KARTA CHARAKTERYSTYKI PRODUKTU MATERIAL SAFETY DATA SHEET

Akumulator litowo-jonowy z anodą z tlenku manganu
Lithium ion manganese oxide battery

Nr artykułu: 571555 R14H / Item no.: 571555 R14H

Zgodnie z rozporządzeniem (WE) nr 1907/2006 (REACH) karta charakterystyki musi być dostarczana tylko dla substancji i preparatów. Akumulatory nie podlegają wymogom powyższego rozporządzenia.

According to Regulation (EC) No. 1907/2006 (REACH), a safety data sheet must be provided solely for substances and preparations. Batteries are not affected by the requirements of this Regulation.

1. Opis substancji i producenta

Product Designation and Name of the Manufacturer

Opis: <i>Identification</i>	Kategoria produktu: <i>Product category</i>	Akumulator litowo-jonowy <i>Lithium-ion battery</i>
	Nazwa modelu: <i>Model name</i>	4S2P
	Napięcie znamionowe: <i>Nominal voltage</i>	14.4V
	Pojemność znamionowa: <i>Nominal capacity</i>	5.0Ah
	Energia znamionowa: <i>Nominal energy</i>	72Wh
	System chemiczny: <i>Chemical system</i>	lit-tlenek manganu / grafit <i>Lithium manganese oxide / Graphite</i>
	Wielokrotne ładowanie: <i>Rechargeable</i>	Tak <i>Yes</i>

Producent: <i>Manufacturer</i>	Nazwa i adres: <i>Name and address</i>	REMS GmbH & Co KG Stuttgarter Straße 83 D-71332 Waiblingen
--	--	---

Telefon / <i>phone</i> :	+49 (0) 7151/ 1707-0
Faks / <i>fax</i> :	+49 (0) 7151/ 1707-110
E-mail / <i>e-mail</i> :	info@rems.de

Tel: +49 (0)7151-1707-0

Fax: +49 (0)7151-1707-110

Amtsgericht Stuttgart HRA 728253

Persönlich haftender Gesellschafter: Föll GmbH

Amtsgericht Stuttgart HRB260321

E-Mail: info@rems.de

Internet: www.rems.de

Geschäftsführer:

Dr.-Ing. Christoph Föll-Laubengeiger

Dr.-Ing. Rudolf Wagner

2. Identifikation zagrożeń

Possible Hazards

- Klasyfikacja:** Akumulator litowo-jonowy ma nominalną energię > 100 Wh. Istnieją specjalne przepisy w różnych przepisach transportowych.
- Classification:** *This lithium-ion battery has a nominal energy of > 100Wh, which is why it is subject to certain special provisions under the hazardous substances law.*
- Zagrożenia:** Akumulatory litowo-jonowe mogą stanowić zagrożenie pożarem, wybuchem lub poparzeniem środkami chemicznymi w przypadku nieprawidłowego obchodzenia się z nimi. Nie wywoływać zwarcia, nie przebijać, nie wrzucać do ognia, nie zgniatać, nie zanurzać, nie wymuszać rozładowania ani nie wystawiać na działanie temperatur wyższych niż podany zakres temperatur roboczych wyrobu. Uważnie przeczytać instrukcje. W normalnych warunkach użytkowania środki chemiczne i metale znajdują się w szczelnej obudowie i nie są narażone na działanie czynników zewnętrznych. Ryzyko pojawia się tylko w przypadku niewłaściwego obchodzenia się z akumulatorem (czynniki mechaniczne, termiczne, elektryczne), co prowadzi do otwarcia zaworu bezpieczeństwa lub przerwania ciągłości obudowy akumulatora. W następstwie tego, w zależności od okoliczności może nastąpić wyciek elektrolitu, reakcja materiałów elektrod z wilgocią/wodą, wydzielanie gazów, zapalenie się lub wybuch akumulatora.
- Hazards:** *When handled improperly, lithium-ion batteries may explode, or cause fire or chemical burns. Batteries must not be short-circuited, punctured, thrown into fire, crushed, immersed in water, forcibly discharged or exposed to temperatures exceeding the product's specified operating range. Please read the operating instructions thoroughly.*
The escape of and contact with any hazardous and toxic substances is not possible under normal conditions of use. A risk of exposure only exists in case of improper (mechanical, thermal, electrical) use which leads to the activation of safety valves and/or the rupture of the battery housing. Depending on the surrounding circumstances, the following might occur: electrolyte leakage, reaction of the electrode materials with moisture/water or battery venting/fire/explosion.
- Toksyczność:** W przypadku zapalenia się akumulatora pary mogą powodować podrażnienia oczu, skóry i dróg oddechowych.
- Toxicity:** *If a battery burns, smoke or vapors are generated. These may cause eye, skin and respiratory tract irritations.*

Tel: +49 (0)7151-1707-0

Fax: +49 (0)7151-1707-110

Amtsgericht Stuttgart HRA 728253

Persönlich haftender Gesellschafter: Föll GmbH

Amtsgericht Stuttgart HRB260321

E-Mail: info@rems.de

Internet: www.rems.de

Geschäftsführer:

Dr.-Ing. Christoph Föll-Laubengeiger

Dr.-Ing. Rudolf Wagner

3. Skład i informacja o składnikach

Composition and Information About the Individual Components

Akumulator zawiera następujące składniki:

The following components are contained in the sealed cell

Element	Nazwa materiału	Stężenie przedział (% wagowo)	Numer / CAS
Elektroda dodatnia	Metalotlenek litu Li[M]m[O]n	20~60	12190-79-3 12057-17-9 182442-95-1
Baza elektrody dodatniej	Aluminium	1~10	7429-90-5
Elektroda ujemna	Węgiel	10~30	7429-90-5
Baza elektrody ujemnej	Miedź	1~15	7440-44-0
Elektrolit	Elektrolit organiczny zawiera głównie estry kwasu węglowego	5~25	Poufne
Obudowa zewnętrzna	Aluminium, żelazo, tworzywo sztuczne powleczone aluminium	1~30	7429-90-5; 7439-89-6

Component	Material name	Concentration range (wt %)	CAS number
Positive electrode	Lithium transition metal oxidate Li[M]m[O]n	20~60	12190-79-3 12057-17-9 182442-95-1
Positive electrode's base	Aluminum	1~10	7429-90-5
Negative electrode	Carbon	10~30	7429-90-5
Negative electrode's base	Copper	1~15	7440-44-0
Electrolyte	Organic electrolyte principally involves ester carbo- nate	5~25	Confidential
Outer case	Aluminum, iron, aluminum laminated plastic	1~30	7429-90-5; 7439-89-6

Tel: +49 (0)7151-1707-0

Fax: +49 (0)7151-1707-110

Amtsgericht Stuttgart HRA 728253

Persönlich haftender Gesellschafter: Föll GmbH

Amtsgericht Stuttgart HRB260321

E-Mail: info@rems.de

Internet: www.rems.de

Geschäftsführer:

Dr.-Ing. Christoph Föll-Laubengeiger

Dr.-Ing. Rudolf Wagner

4. Środki pierwszej pomocy

First Aid Measures

Substancje chemiczne są zamknięte w szczelnej obudowie. W normalnych warunkach użytkowania ryzyko narażenia występuje tylko w przypadku mechanicznego uszkodzenia obudowy.

The chemicals are contained in a sealed housing so that they cannot escape during normal use. Leakage may only be caused as a result of mechanical damage to the housing.

W razie wycieku substancji chemicznych należy stosować się poniższych instrukcji:

If chemicals do leak, the following must be observed:

- | | |
|--------------------------|--|
| Wdychanie: | Zawartość otwartego akumulatora może powodować podrażnienia dróg oddechowych. Zapewnić dopływ świeżego powietrza i wezwać lekarza. |
| <i>Inhalation:</i> | <i>Escaping gases may cause respiratory tract irritation. Immediately ventilate or leave the room to get into fresh air. In more serious cases, call a doctor immediately.</i> |
| Kontakt ze skórą: | Zawartość otwartego akumulatora może powodować podrażnienia skóry. Umyć skórę wodą z mydłem. |
| <i>Skin contact:</i> | <i>Skin irritations may occur. Thoroughly wash the skin with soap and water.</i> |
| Kontakt z oczami: | Zawartość otwartego akumulatora może powodować podrażnienia oczu. Natychmiast przepłukać oczy dużą ilością wody przez 15 minut i zasięgnąć porady medycznej. |
| <i>Eye contact:</i> | <i>Eye irritations may occur. Immediately and thoroughly rinse the eyes with water for 15 minutes then seek medical assistance.</i> |

5. Postępowanie w przypadku pożaru

Fire Fighting Measures

- | | |
|-------------------------|--|
| W razie pożaru: | Używać wyłącznie gaśnic proszkowych. |
| <i>In case of fire:</i> | <i>Only use Class D (dry powder) fire extinguishers.</i> |
| Uwaga: | Przed przystąpieniem do gaszenia ognia należy zawsze ustawiać się po stronie, od której wieje wiatr. W ten sposób można uniknąć wdychania toksycznych oparów. |
| <i>Caution:</i> | <i>Before you start extinguishing the fire, be sure to go to the side of the fire from which the wind is coming. In this way, you will not inhale any toxic vapours.</i> |

Tel: +49 (0)7151-1707-0

Fax: +49 (0)7151-1707-110

Amtsgericht Stuttgart HRA 728253

Persönlich haftender Gesellschafter: Föll GmbH

Amtsgericht Stuttgart HRB260321

E-Mail: info@rems.de

Internet: www.rems.de

Geschäftsführer:

Dr.-Ing. Christoph Föll-Laubengeiger

Dr.-Ing. Rudolf Wagner

6. Postępowanie w przypadku niezamierzonego uwolnienia substancji

Measures to Be Implemented in Case of Accidental Leakage

Rozlany elektrolit należy zebrać za pomocą ściereczki z chłonnego materiału.

Leaked electrolyte fluid should be wiped up with an absorbent cloth.

W przypadku uwolnienia większych ilości elektrolitu należy stosować:

Personal protective equipment should be worn in case of larger leakages:

- ↪ **odzież ochronną**
protective clothing
- ↪ **maskę przeciwgazową chroniącą przed gazami organicznymi**
gas mask for protection against organic gases
- ↪ **okulary ochronne**
safety goggles
- ↪ **rękawice**
protective gloves

7. Postępowanie z produktem i jego przechowywanie

Handling and Storage

Użytkowanie: Nie otwierać akumulatora. Nie zgniatać, nie rozmontowywać, nie rzucać ani nie przylutowywać akumulatora.

Handling: *Neither open, crush nor disassemble the battery, nor let it drop from a great height nor solder anything onto it.*

Ładowanie: Przy ładowaniu temperatura musi zawierać się w przedziale od 0°C do +45°C. Ładować wyłącznie za pomocą przeznaczonej do tego ładowarki.

Charging: *The charging temperature must be between +32 °F and +113 °F. Only use the charger designated for this battery.*

Rozładowywanie: Przy rozładowywaniu temperatura musi zawierać się w przedziale od -20°C do +60°C.

Discharging: *The battery may only be discharged at temperatures from -4 °F to +140 °F.*

Uwaga: Nieprawidłowa obsługa może być przyczyną pożaru lub wybuchu!

Caution: *Improper handling may cause fire or explosion!*

Przechowywanie: Temperatura: -20 °C do +40 °C w okresie nieprzekraczającym 3 miesięcy

Storage: *Temperature: -4°F to +104 °F, for less than 3 months*

Wilgotność powietrza: od 0% do 80%

Humidity range: 0 % to 80 %

W pomieszczeniu należy zapewnić dobrą wentylację / *Store in a well-ventilated place.*

Zwarcie może spowodować pożar. / *Short circuits may cause fires.*

Nie przechowywać razem z innymi przedmiotami metalowymi. / *Do not store along with other metal objects.*

Tel: +49 (0)7151-1707-0

Fax: +49 (0)7151-1707-110

Amtsgericht Stuttgart HRA 728253

Persönlich haftender Gesellschafter: Föll GmbH

Amtsgericht Stuttgart HRB260321

E-Mail: info@rems.de

Internet: www.rems.de

Geschäftsführer:

Dr.-Ing. Christoph Föll-Laubengeiger

Dr.-Ing. Rudolf Wagner

8. Środki ograniczania ryzyka i środki ochrony indywidualnej

Monitoring of the Stored Goods and Personal Protective Equipment

Należy przestrzegać wskazówek zawartych w punkcie 7. Należy regularnie sprawdzać, czy temperatura przechowywania mieści się w dopuszczalnych granicach. Należy również zapewnić dobrą wentylację i wilgotność w dopuszczalnym zakresie. Przy normalnym użytkowaniu nie jest wymagany sprzęt ochronny.

Observe the information stated in Section 7. Continuously monitor the storage temperature so as to ensure that it is within the specified limits. Apart from that, it is required to ensure good ventilation and that the humidity does not exceed the specified limits. No protective equipment is required during normal handling.

9. Właściwości fizyczne i chemiczne

Physical and Chemical Properties

Wygląd: 8 ogniw w obudowie.
Appearance: Housing with 8 cells.

Masa: 520 g
Weight: 520 g

Właściwości chemiczne: Patrz punkt 3
Chemical properties: see Section 3

10. Stabilność i reaktywność

Stability and Reactivity

Przechowywanie przez czas dłuższy niż 12 miesięcy powoduje spadek pojemności akumulatora i skrócenie jego czasu eksploatacji. Jeżeli z jakiegokolwiek powodu i w jakichkolwiek okolicznościach nastąpi wyciek elektrolitu, obudowa z tworzywa sztucznego może ulec uszkodzeniu.

Storage periods of more than 12 months will decrease the battery's capacity and expected lifespan. Electrolyte leakages may damage the housing on the inside.

11. Informacje toksykologiczne

Toxicological Information

Przy normalnym użytkowaniu wycieki nie występują, w związku z tym nie dochodzi do kontaktu z toksycznymi składnikami akumulatora.

The escape of and contact with any hazardous and toxic substances is not possible under normal conditions of use.

Tel: +49 (0)7151-1707-0
Fax: +49 (0)7151-1707-110
Amtsgericht Stuttgart HRA 728253
Persönlich haftender Gesellschafter: Föll GmbH
Amtsgericht Stuttgart HRB260321

E-Mail: info@rems.de
Internet: www.rems.de
Geschäftsführer:
Dr.-Ing. Christoph Föll-Laubengeiger
Dr.-Ing. Rudolf Wagner

12. Umweltspezifische Angaben

Environment-Related Information

Przy normalnym użytkowaniu akumulatora nie dochodzi do skażenia środowiska. Mimo to akumulator zawiera środki chemiczne, które mogą stanowić zagrożenie dla środowiska. Przy usuwaniu zużytych akumulatorów należy zawsze stosować się do instrukcji podanych w punkcie 13.

Provided that the battery is handled properly, environmental pollution does not occur. After use, however, the battery must be disposed of separately as it contains hazardous chemicals. See Section 13.

13. Uwagi dotyczące utylizacji

Disposal Instructions

Akumulator zalicza się do odpadów niebezpiecznych.

Jest niedozwolone utylizowanie go razem z odpadami komunalnymi.

Jeśli akumulator jest niezdatny do użytku, należy go utylizować zgodnie z obowiązującymi przepisami dotyczącymi recyklingu.

Batteries are classified as hazardous waste.

The battery may only be disposed of by returning it to an authorized collection point.

It is prohibited to dispose of the battery with normal household waste.

14. Informacje dotyczące transportu

Transportation information

Informacje ogólne

General explanation

W odniesieniu do transportu tych wyrobów drogą powietrzną oraz w transporcie drogowym, kolejowym i morskim zastosowanie mają przepisy ograniczające. Informacje dotyczące tych przepisów są podane poniżej. Ponieważ przepisy podlegają częstym zmianom, przewoźnik musi zagwarantować, że wyroby są transportowane zgodnie z właściwymi przepisami obowiązującymi w chwili wysyłki. Jeżeli jest to wymagane, należy skontaktować się z producentem w celu uzyskania pomocy w tym zakresie.

Restrictive regulations are applicable to the product's transport by air, road, rail or sea. Below you will find references to these regulations. As these laws are subject to frequent changes, the transport company shall ensure that the products are transported according to the regulations applicable at the time of shipment. Please contact the manufacturer of the products if you need any assistance in this matter.

Transport zgodnie z Instrukcjami UN 3480/3481 (1).

Mają zastosowanie przepisy dla akumulatorów z mocą nominalną ≤ 100 Wh.

Transportation of the battery according to Directive UN 3480/3481 (1).

The regulations for batteries with nominal energy ≤ 100 Wh have to be used.

Tel: +49 (0)7151-1707-0
Fax: +49 (0)7151-1707-110
Amtsgericht Stuttgart HRA 728253
Persönlich haftender Gesellschafter: Föll GmbH
Amtsgericht Stuttgart HRB260321

E-Mail: info@rems.de
Internet: www.rems.de
Geschäftsführer:
Dr.-Ing. Christoph Föll-Laubengeiger
Dr.-Ing. Rudolf Wagner

Akumulator **musi** być zabezpieczony przed zwarciami.
*The battery **must** be protected against short circuits.*

Przepisy dotyczące transportu są różne w zależności od regionu i sposobu transportu.
The transport regulations depend on the country-specific provisions and on the type of transport.

Każde opakowanie musi być oznaczone następującymi etykietami oraz opisami:
Each package must be marked with the following labels. Furthermore, it is required to enclose an accompanying note as stated below.

Etykiety do transportu drogowego/kolejowego i Droga morską
Labelling for transport by road/rail and sea



+ etykieta z adresami nadawcy i odbiorcy
+ Label stating the consignor and consignee

ADR/RID/IMDG-Code: Ten akumulator spełnia wymagania Przepisu Specjalnego 188.
The battery meets the requirements of special provision 188.

Etykieta wysyłkowa/ Cargo – wyłącznie transport lotniczy CAO
Shipping label/cargo aircraft only (CAO)



+ etykieta z adresami nadawcy i odbiorcy
+ Label stating the consignor and consignee

Opis zawartości / *Accompanying note:* UN 3480 LITHIUM-ION BATTERIES, 9, -, (E)

Przepisu Specjalnego 188
special provision 188

ICAO-TI/IATA-DGR: Instrukcje dot. pakowania 965, sekcja II lub sekcja IB
Packing instruction 965, Part II or Part IB

Tel: +49 (0)7151-1707-0

Fax: +49 (0)7151-1707-110

Amtsgericht Stuttgart HRA 728253

Persönlich haftender Gesellschafter: Föll GmbH

Amtsgericht Stuttgart HRB260321

E-Mail: info@rems.de

Internet: www.rems.de

Geschäftsführer:

Dr.-Ing. Christoph Föll-Laubengeiger

Dr.-Ing. Rudolf Wagner

15. Informationen dotyczące przepisów prawnych

Provisions and Regulations

Instrukcje dotyczące transportu towarów niebezpiecznych:

References to provisions concerning the transport of hazardous goods:

Warunki transportu towarów niebezpiecznych (GGBefG)

Transportation of Dangerous Goods Act (GGBefG)

Rozporządzenie w sprawie transportu towarów niebezpiecznych drogą lądową, kolejową i śródlądową (GGVSEB)

Ordinance on the Transport of Dangerous Goods by Road, Rail and Inland Waterways (GGVSEB)

Rozporządzenie w sprawie transportu towarów niebezpiecznych drogą morską (GGVSee)

Ordinance on the Transport of Dangerous Goods by Sea (GGVSee)

Ustawa o ruchu lotniczym (LuftVG), nakaz licencjonowania ruchu lotniczego (LuftVZO)

Air Traffic Act (LuftVG), Air Traffic Licensing Order (LuftVZO)

Umowa europejska dotycząca międzynarodowego przewozu drogowego towarów niebezpiecznych (ADR)

European Agreement concerning the International Carriage of Dangerous Goods by Road (ADR)

Zamówienie na międzynarodowy przewóz towarów niebezpiecznych koleją (RID)

Regulation concerning the International Carriage of Dangerous Goods by Rail (RID)

Europejska konwencja o transporcie towarów niebezpiecznych śródlądowymi drogami wodnymi (ADN)

European Agreement concerning the International Carriage of Dangerous Goods by Inland Navigation (ADN)

Międzynarodowy morski kodeks transportu towarów niebezpiecznych (IMDG-Code)

International Maritime Dangerous Goods Code (IMDG-Code)

International Civil Aviation Organization –

Przepisy techniczne dotyczące transportu towarów niebezpiecznych drogą powietrzną (ICAO-TI)

Technical Instructions for the Safe Transport of Dangerous Goods by Air (ICAO-TI)

International Air Transport Association –

Przepisy dotyczące transportu towarów niebezpiecznych (IATA-DGR)

Dangerous Goods Regulations (IATA-DGR)

Tel: +49 (0)7151-1707-0

Fax: +49 (0)7151-1707-110

Amtsgericht Stuttgart HRA 728253

Persönlich haftender Gesellschafter: Föll GmbH

Amtsgericht Stuttgart HRB260321

E-Mail: info@rems.de

Internet: www.rems.de

Geschäftsführer:

Dr.-Ing. Christoph Föll-Laubengeiger

Dr.-Ing. Rudolf Wagner

16. Stan naładowania zgodnie ze zmianami rozporządzenia IATA obowiązującymi od 1 kwietnia 2016 r

State of Charge in Accordance with the Changes to the IATA Dangerous Goods Regulations Effective from 1 April 2016

Zgodnie ze zmianami IATA na temat ładunków niebezpiecznych obowiązującymi od 1 kwietnia 2016, REMS GmbH & Co KG potwierdza, że od 1 kwietnia 2016, wszystkie wyprodukowane akumulatory jonowo-litowe, są wysyłane wyłącznie przy obciążeniu ładunkiem nieprzekraczającym 30% maksymalnej nominalnej zdolności obciążeniowej.

In accordance with the changes to the IATA Dangerous Goods Regulations, which entered into force on 1 April 2016, REMS GmbH & Co KG confirms that all lithium-ion batteries (UN 3480) manufactured from 1 April 2016 will be handed over for transportation with their state of charge (SoC) not exceeding 30% of their design capacity

17. Inne informacje

Other information

Niniejsze informacje zostały zebrane z zachowaniem dokładności według naszej najlepszej wiedzy i przekonań. Jednak REMS GmbH & Co. KG nie udziela żadnej gwarancji dotyczącej dokładności, wiarygodności i kompletności informacji zawartych w dokumencie. Na użytkownika spoczywa odpowiedzialność upewnienia się co do przydatności, kompletności i adekwatności informacji w odniesieniu do konkretnego zastosowania.

This information has been meticulously compiled to the best of our knowledge and belief. REMS GmbH & Co KG excludes any warranty whatsoever for the accuracy, reliability or completeness of the information provided herein! It is the user's responsibility to check the information's suitability, completeness and timeliness with regard to the relevant purpose of use.

Tel: +49 (0)7151-1707-0

Fax: +49 (0)7151-1707-110

Amtsgericht Stuttgart HRA 728253

Persönlich haftender Gesellschafter: Föll GmbH

Amtsgericht Stuttgart HRB260321

E-Mail: info@rems.de

Internet: www.rems.de

Geschäftsführer:

Dr.-Ing. Christoph Föll-Laubengeiger

Dr.-Ing. Rudolf Wagner

BEZPEČNOSTNÍ LIST PRODUKTU MATERIAL SAFETY DATA SHEET

Lithium iontová baterie s oxidem manganičitým
Lithium ion manganese oxide battery

Artikl č.: 571555 R14H / Item no.: 571555 R14H

Podle nařízení (ES) č. 1907/2006 (Reach) se musí bezpečnostní list dodávat pouze u látek a přípravků. Na baterie se požadavky uvedené v této směrnici nevztahují.

According to Regulation (EC) No. 1907/2006 (REACH), a safety data sheet must be provided solely for substances and preparations. Batteries are not affected by the requirements of this Regulation.

1. Identifikace látky a výrobce

Product Designation and Name of the Manufacturer

Identifikace: <i>Identification:</i>	Kategorie produktu: <i>Product category</i>	Lithium iontová baterie <i>Lithium-ion battery</i>
	Název modelu: <i>Model name</i>	4S2P
	Jmenovité napětí: <i>Nominal voltage</i>	14.4V
	Jmenovitá kapacita: <i>Nominal capacity</i>	5.0Ah
	Jmenovitá energie: <i>Nominal energy</i>	72Wh
	Chemický systém: <i>Chemical system</i>	Lithium-oxid manganičitý / grafit <i>Lithium manganese oxide / Graphite</i>
	Nabíjecí: <i>Rechargeable</i>	Ano <i>Yes</i>

Výrobce: <i>Manufacturer</i>	Název a adresa: <i>Name and address</i>	REMS GmbH & Co KG Stuttgarter Straße 83 D-71332 Waiblingen
	Telefon / <i>phone:</i>	+49 (0) 7151/ 1707-0
	Telefax / <i>fax:</i>	+49 (0) 7151/ 1707-110
	E-mail / <i>e-mail:</i>	info@rems.de

Tel: +49 (0)7151-1707-0

Fax: +49 (0)7151-1707-110

Amtsgericht Stuttgart HRA 728253

Persönlich haftender Gesellschafter: Föll GmbH

Amtsgericht Stuttgart HRB260321

E-Mail: info@rems.de

Internet: www.rems.de

Geschäftsführer:

Dr.-Ing. Christoph Föll-Laubengeiger

Dr.-Ing. Rudolf Wagner

2. Identifikace nebezpečnosti:

Possible Hazards:

Klasifikace: Tato lithium iontová nabíjecí baterie má jmenovitou energii > 100 Wh. V různých směrnících pro převoz jsou zvláštní ustanovení.

Classification: *This lithium-ion battery has a nominal energy of > 100Wh, which is why it is subject to certain special provisions under the hazardous substances law.*

Rizika: Lithium-iontové baterie mohou při nesprávném zacházení představovat riziko požáru, výbuchu nebo popálenin chemickými látkami. Nezkratujte, nepropichujte, nezapalujte, nedrťte, neponořujte do tekutin, neprovádějte nucené vybití ani nevystavujte teplotám nad deklarovanou provozní teplotu výrobku. Pečlivě si přečtěte pokyny. Za normálních podmínek použití jsou chemické látky a kovy uzavřeny v utěsněném obalu a neunikají ven. Riziko vytečení hrozí pouze v případě nesprávného zacházení (mechanického, teplotního, elektrického), což může vést k aktivaci bezpečnostních ventilů a/nebo prasknutí krytu baterie. V závislosti na okolnostech pak může dojít k prosakování elektrolytu, reakci materiálů elektrod s vlhkostí/vodou nebo vytečení baterie či jejímu vznícení nebo výbuchu.

Hazards: *When handled improperly, lithium-ion batteries may explode, or cause fire or chemical burns. Batteries must not be short-circuited, punctured, thrown into fire, crushed, immersed in water, forcibly discharged or exposed to temperatures exceeding the product's specified operating range. Please read the operating instructions thoroughly. The escape of and contact with any hazardous and toxic substances is not possible under normal conditions of use. A risk of exposure only exists in case of improper (mechanical, thermal, electrical) use which leads to the activation of safety valves and/or the rupture of the battery housing. Depending on the surrounding circumstances, the following might occur: electrolyte leakage, reaction of the electrode materials with moisture/water or battery venting/fire/explosion.*

Toxicita: Pokud baterie hoří, výpary mohou podráždit oči, pokožku a dýchací trakt.

Toxicity: *If a battery burns, smoke or vapors are generated. These may cause eye, skin and respiratory tract irritations.*

Tel: +49 (0)7151-1707-0

Fax: +49 (0)7151-1707-110

Amtsgericht Stuttgart HRA 728253

Persönlich haftender Gesellschafter: Föll GmbH

Amtsgericht Stuttgart HRB260321

E-Mail: info@rems.de

Internet: www.rems.de

Geschäftsführer:

Dr.-Ing. Christoph Föll-Laubengeiger

Dr.-Ing. Rudolf Wagner

3. Složení a informace o složkách

Composition and Information About the Individual Components

Baterie obsahuje následující složky.

The following components are contained in the sealed cell.

Část	Název materiálu	Rozsah koncentrací (hmot. %)	Číslo CAS/CAS number
Kladná elektroda	Lithiový přechod oxid kovu Li[M]m[O]n	20–60	12190-79-3 12057-17-9 182442-95-1
Základna kladné elektrody	Hliník	1–10	7429-90-5
Záporná elektroda	Uhlík	10–30	7429-90-5
Základna záporné elektrody	Měď	1–15	7440-44-0
Elektrolyt	Organický elektrolyt obsahuje převážně ester kyseliny uhličitě	5–25	Důvěrné
Vnější obal	Hliník, železo plast potažený hliníkem	1–30	7429-90-5; 7439-89-6

Component	Material name	Concentration range (wt %)	CAS number
Positive electrode	Lithium transition metal oxidate Li[M]m[O]n	20~60	12190-79-3 12057-17-9 182442-95-1
Positive electrode's base	Aluminum	1~10	7429-90-5
Negative electrode	Carbon	10~30	7429-90-5
Negative electrode's base	Copper	1~15	7440-44-0
Electrolyte	Organic electrolyte principally involves ester carbonate	5~25	Confidential
Outer case	Aluminum, iron, aluminum laminated plastic	1~30	7429-90-5; 7439-89-6

Tel: +49 (0)7151-1707-0

Fax: +49 (0)7151-1707-110

Amtsgericht Stuttgart HRA 728253

Persönlich haftender Gesellschafter: Föll GmbH

Amtsgericht Stuttgart HRB260321

E-Mail: info@rems.de

Internet: www.rems.de

Geschäftsführer:

Dr.-Ing. Christoph Föll-Laubengeiger

Dr.-Ing. Rudolf Wagner

4. První pomoc

First Aid Measures

Chemické látky jsou uzavřeny v utěsněných obalech. Za běžných podmínek použití se riziko úniku vyskytuje pouze v případě nesprávného mechanického zacházení s baterií.

The chemicals are contained in a sealed housing so that they cannot escape during normal use. Leakage may only be caused as a result of mechanical damage to the housing.

Pokud z baterie unikají chemikálie, řiďte se následujícími pokyny:

If chemicals do leak, the following must be observed

- | | |
|----------------------------|--|
| Vdechnutí: | Obsah otevřené baterie může způsobovat podráždění dýchacích cest. Zajistěte přívod čerstvého vzduchu a zavolejte lékaře. |
| <i>Inhalation:</i> | <i>Escaping gases may cause respiratory tract irritation. Immediately ventilate or leave the room to get into fresh air. In more serious cases, call a doctor immediately.</i> |
| Potřísnění pokožky: | Obsah otevřené baterie může způsobovat podráždění pokožky. Pokožku omyjte mýdlem a vodou. |
| <i>Skin contact:</i> | <i>Skin irritations may occur. Thoroughly wash the skin with soap and water.</i> |
| Vniknutí do očí: | Obsah otevřené baterie může způsobovat podráždění očí. Oči si okamžitě důkladně vypláchněte proudem čisté vody, a to po dobu 15 minut. Následně vyhledejte lékařské ošetření. |
| <i>Eye contact:</i> | <i>Eye irritations may occur. Immediately and thoroughly rinse the eyes with water for 15 minutes then seek medical assistance.</i> |

5. Opatření pro hašení požáru

Fire Fighting Measures

- | | |
|--------------------------|--|
| V případě požáru: | Používejte pouze chemické hasicí přístroje. |
| <i>In case of fire:</i> | <i>Only use Class D (dry powder) fire extinguishers.</i> |
| Upozornění: | Před zahájením hašení požáru se ujistěte, že stojíte po větru. Nebudete tak vdechovat toxické výpary. |
| <i>Caution:</i> | <i>Before you start extinguishing the fire, be sure to go to the side of the fire from which the wind is coming. In this way, you will not inhale any toxic vapours.</i> |

Tel: +49 (0)7151-1707-0

Fax: +49 (0)7151-1707-110

Amtsgericht Stuttgart HRA 728253

Persönlich haftender Gesellschafter: Föll GmbH

Amtsgericht Stuttgart HRB260321

E-Mail: info@rems.de

Internet: www.rems.de

Geschäftsführer:

Dr.-Ing. Christoph Föll-Laubengeiger

Dr.-Ing. Rudolf Wagner

6. Opatření v případě náhodného úniku





Measures to Be Implemented in Case of Accidental Leakage

Vyteklý elektrolyt vytřete savou textilií.

Leaked electrolyte fluid should be wiped up with an absorbent cloth.

Pokud je vyteklého elektrolytu hodně, měli byste mít:

Personal protective equipment should be worn in case of larger leakages:

-  **ochranný oděv**
protective clothing
-  **plynovou masku na organické plyny**
gas mask for protection against organic gases
-  **ochranné brýle**
safety goggles
-  **ochranné rukavice**
protective gloves

7. Zacházení a skladování

Handling and Storage

- Zacházení:** Baterii neotvírejte. Nestlačujte, nerozebírejte, neházejte ani nepájejte.
Handling: *Neither open, crush nor disassemble the battery, nor let it drop from a great height nor solder anything onto it.*
- Nabíjení:** Nabíjejte v rámci teplotních limitů 0 °C až +45 °C. Nabíjejte pouze nabíječkou určenou pro danou baterii.
Charging: *The charging temperature must be between +32 °F and +113 °F. Only use the charger designated for this battery.*
- Vybíjení:** Vybíjejte v rámci teplotních limitů -20 °C až +60 °C.
Discharging: *The battery may only be discharged at temperatures from -4 °F to +140 °F.*
- Upozornění:** Nesprávným zacházením můžete způsobit požár nebo výbuch!
Caution: *Improper handling may cause fire or explosion!*
- Skladování:** Teplota: -20 °C až +40 °C do 3 měsíců
Storage: *Temperature: -4 °F to +113 °F for less than 3 months*
Rozsah vlhkosti: 0 % až 80 %
Humidity range: 0 % to 80 %
Dobře větrané prostory / *Store in a well-ventilated place.*
Zkratováním se může způsobit požár. / *Short circuits may cause fires.*
Neskladujte s kovovými předměty. / *Do not store along with other metal objects.*

Tel: +49 (0)7151-1707-0

Fax: +49 (0)7151-1707-110

Amtsgericht Stuttgart HRA 728253

Persönlich haftender Gesellschafter: Föll GmbH

Amtsgericht Stuttgart HRB260321

E-Mail: info@rems.de

Internet: www.rems.de

Geschäftsführer:

Dr.-Ing. Christoph Föll-Laubengeiger

Dr.-Ing. Rudolf Wagner

8. Omezování expozice a osobní ochranné pomůcky

Monitoring of the Stored Goods and Personal Protective Equipment

Je nutné dodržovat pokyny uvedené v bodu 7. Sledujte, zda je skladovací teplota stále v uvedeném rozmezí. Zajistěte také dobré větrání a vlhkost v uvedeném rozsahu. Při běžném používání není třeba používat ochranné pomůcky.

Observe the information stated in Section 7. Continuously monitor the storage temperature so as to ensure that it is within the specified limits. Apart from that, it is required to ensure good ventilation and that the humidity does not exceed the specified limits. No protective equipment is required during normal handling.

9. Fyzikální a chemické vlastnosti

Physical and Chemical Properties

Vzhled:	8 článků v obalu
<i>Appearance:</i>	<i>Housing with 8 cells</i>
Hmotnost:	520 g
<i>Weight:</i>	<i>520 g</i>
Chemické vlastnosti:	viz bod 3
<i>Chemical properties:</i>	<i>see Section 3</i>

10. Stálost a reaktivita

Stability and Reactivity

Při skladování delším než 12 měsíců se kapacita sníží a životnost baterie se zkrátí. Pokud za jakýchkoli podmínek či okolností dojde k úniku elektrolytu, plastový kryt může být poškozen.

Storage periods of more than 12 months will decrease the battery's capacity and expected lifespan. Electrolyte leakages may damage the housing on the inside.

11. Toxikologické informace

Toxicological Information

Při normálním používání nebude docházet k žádnému úniku, a proto nebude hrozit žádný kontakt s jedovatými složkami baterie.

The escape of and contact with any hazardous and toxic substances is not possible under normal conditions of use.

Tel: +49 (0)7151-1707-0
Fax: +49 (0)7151-1707-110
Amtsgericht Stuttgart HRA 728253
Persönlich haftender Gesellschafter: Föll GmbH
Amtsgericht Stuttgart HRB260321

E-Mail: info@rems.de
Internet: www.rems.de
Geschäftsführer:
Dr.-Ing. Christoph Föll-Laubengeiger
Dr.-Ing. Rudolf Wagner

12. Ekologické informace

Environment-Related Information

Při normálním používání baterie nedochází ke znečištění životního prostředí. Baterie však obsahuje chemikálie, které mohou ohrozit životní prostředí. Když baterie vyhazujete, vždy se řiďte pokyny uvedenými v bodu 13.

Provided that the battery is handled properly, environmental pollution does not occur. After use, however, the battery must be disposed of separately as it contains hazardous chemicals. See Section 13

13. Pokyny pro odstraňování

Disposal Instructions

Baterie je nebezpečný odpad.

Není dovoleno ji vyhazovat do běžného komunálního odpadu.

Pokud je baterie nepoužitelná, zlikvidujte ji v souladu s platnými recyklačními předpisy.

Batteries are classified as hazardous waste.

The battery may only be disposed of by returning it to an authorized collection point.

It is prohibited to dispose of the battery with normal household waste.

14. Informace pro přepravu

Transportation information

Obecné zásady

General explanation

Omezující směrnice se týkají přepravy tohoto zboží letecky, po silnici, po železnici nebo po moři. Odkazy na tyto směrnice jsou uvedeny níže. Právní předpisy podléhají častým změnám, a proto přepravce musí zajistit, že se zboží přepravuje v souladu s právními předpisy platnými v době, kdy se přeprava uskutečňuje. V případě potřeby se obraťte na výrobce a požádejte ho o doplňující informace.

Restrictive regulations are applicable to the product's transport by air, road, rail or sea. Below you will find references to these regulations. As these laws are subject to frequent changes, the transport company shall ensure that the products are transported according to the regulations applicable at the time of shipment. Please contact the manufacturer of the products if you need any assistance in this matter.

Přeprava baterie dle směrnice UN 3480/3481 (1).

Je třeba dodržovat předpisy pro baterie s jmenovitým výkonem ≤ 100 Wh.

Transportation of the battery according to Directive UN 3480/3481 (1).

The regulations for batteries with nominal energy ≤ 100 Wh have to be used.

Baterie **musí** být zabezpečena proti zkratu.

The battery **must** be protected against short circuits.

Tel: +49 (0)7151-1707-0

Fax: +49 (0)7151-1707-110

Amtsgericht Stuttgart HRA 728253

Persönlich haftender Gesellschafter: Föll GmbH

Amtsgericht Stuttgart HRB260321

E-Mail: info@rems.de

Internet: www.rems.de

Geschäftsführer:

Dr.-Ing. Christoph Föll-Laubengeiger

Dr.-Ing. Rudolf Wagner

Přepavní předpisy se liší podle regionu a způsobu přepravy.

The transport regulations depend on the country-specific provisions and on the type of transport.

Každý kus balení musí být označen následujícími nálepkami a musí být přiložen průvodní dopis, jak je uvedeno níže:

Each package must be marked with the following labels. Furthermore, it is required to enclose an accompanying note as stated below:

Nálepky pro přepravu na silnici/železnici a moře

Labelling for transport by road/rail and sea



+ nálepka s odesílatelem a příjemcem

+ Label stating the consignor and consignee

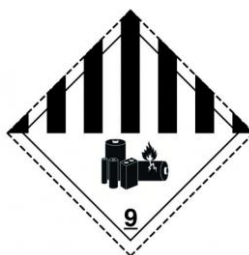
ADR/RID/IMDG-Code:

Baterie splňuje požadavky zvláštního ustanovení 188.

The battery meets the requirements of special provision 188.

Nálepka pro zaslání / letecká doprava CAO

Shipping label/cargo aircraft only (CAO)



+ nálepka s odesílatelem a příjemcem

+ Label stating the consignor and consignee

Průvodní dopis: / Accompanying note: UN 3480 LITHIUM-ION BATTERIES, 9, -, (E)

Zvláštního ustanovení 188

special provision 188

ICAO-TI/IATA-DGR:

Předpisy o obalech 965, část II nebo část IB

Packing instruction 965, Part II or Part IB

Tel: +49 (0)7151-1707-0

Fax: +49 (0)7151-1707-110

Amtsgericht Stuttgart HRA 728253

Persönlich haftender Gesellschafter: Föll GmbH

Amtsgericht Stuttgart HRB260321

E-Mail: info@rems.de

Internet: www.rems.de

Geschäftsführer:

Dr.-Ing. Christoph Föll-Laubengeiger

Dr.-Ing. Rudolf Wagner

15. Informace o předpisech

Provisions and Regulations

Upozornění na předpisy pro přepravu nebezpečného zboží:

References to provisions concerning the transport of hazardous goods:

Zákon o přepravě nebezpečných věcí (GGBefG)

Transportation of Dangerous Goods Act (GGBefG)

Nařízení pro přepravu nebezpečných věcí po silnici, železnici a vnitrozemskou lodní přepravou (GGVSEB)

Ordinance on the Transport of Dangerous Goods by Road, Rail and Inland Waterways (GGVSEB)

Nařízení pro námořní přepravu nebezpečných věcí (GGVSee)

Ordinance on the Transport of Dangerous Goods by Sea (GGVSee)

Zákon o letecké přepravě (LuftVG), Schvalovací řád pro leteckou dopravu (LuftVZO)

Air Traffic Act (LuftVG), Air Traffic Licensing Order (LuftVZO)

Evropská dohoda o mezinárodní silniční přepravě nebezpečných věcí (ADR)

European Agreement concerning the International Carriage of Dangerous Goods by Road (ADR)

Řád pro mezinárodní železniční přepravu nebezpečných věcí (RID)

Regulation concerning the International Carriage of Dangerous Goods by Rail (RID)

Evropská dohoda o přepravě nebezpečných věcí po vnitrozemských vodních cestách (ADN)

European Agreement concerning the International Carriage of Dangerous Goods by Inland Navigation (ADN)

Mezinárodní kód pro mezinárodní námořní přepravu nebezpečných látek (IMDG kód)

International Maritime Dangerous Goods Code (IMDG-Code)

International Civil Aviation Organization -

Technické předpisy pro leteckou přepravu nebezpečných věcí (ICAO-TI)

Technical Instructions for the Safe Transport of Dangerous Goods by Air (ICAO-TI)

International Air Transport Association -

Předpisy pro přepravu nebezpečných věcí (IATA-DGR)

Dangerous Goods Regulations (IATA-DGR)

Tel: +49 (0)7151-1707-0

Fax: +49 (0)7151-1707-110

Amtsgericht Stuttgart HRA 728253

Persönlich haftender Gesellschafter: Föll GmbH

Amtsgericht Stuttgart HRB260321

E-Mail: info@rems.de

Internet: www.rems.de

Geschäftsführer:

Dr.-Ing. Christoph Föll-Laubengeiger

Dr.-Ing. Rudolf Wagner

16. Stav nabití dle změny Předpisů IATA pro nebezpečný náklad od 1. dubna 2016

State of Charge in Accordance with the Changes to the IATA Dangerous Goods Regulations Effective from 1 April 2016

V souladu se změnou Předpisů IATA pro nebezpečný náklad, které vstupují v platnost k 1. dubnu 2016, potvrzuje REMS GmbH & Co KG, že lithium-iontové akumulátory (UN 3480) vyráběné od 1. dubna 2016, jsou předávány k dopravě se stavem nabití (SoC) ve výši maximálně 30 % jejich dimenzované kapacity.

In accordance with the changes to the IATA Dangerous Goods Regulations, which entered into force on 1 April 2016, REMS GmbH & Co KG confirms that all lithium-ion batteries (UN 3480) manufactured from 1 April 2016 will be handed over for transportation with their state of charge (SoC) not exceeding 30% of their design capacity.

17. Další informace

Other information

Tyto informace byly sestaveny přesně podle nejlepšího vědomí a svědomí. REMS GmbH & Co KG však neposkytuje žádnou záruku, že jsou uvedené informace přesné, spolehlivé nebo úplné. Je odpovědností uživatele, aby si ověřil, zda jsou informace uvedené pro daný druh přepravy přesné a úplné.

This information has been meticulously compiled to the best of our knowledge and belief. REMS GmbH & Co KG excludes any warranty whatsoever for the accuracy, reliability or completeness of the information provided herein! It is the user's responsibility to check the information's suitability, completeness and timeliness with regard to the relevant purpose of use.

Tel: +49 (0)7151-1707-0

Fax: +49 (0)7151-1707-110

Amtsgericht Stuttgart HRA 728253

Persönlich haftender Gesellschafter: Föll GmbH

Amtsgericht Stuttgart HRB260321

E-Mail: info@rems.de

Internet: www.rems.de

Geschäftsführer:

Dr.-Ing. Christoph Föll-Laubengeiger

Dr.-Ing. Rudolf Wagner

KARTA BEZPEČNOSTNÝCH ÚDAJOV PRODUKTU MATERIAL SAFETY DATA SHEET

Lítium-iónová batéria na báze oxidu mangánatého
Lithium ion manganese oxide battery

Číslo položky: 571555 R14H / Item no.: 571555 R14H

Podľa nariadenia (ES) č. 1907/2006 (REACH) sa karta bezpečnostných údajov produktu musí vydať iba pre látky a prípravky. Batérie nie sú predmetom požiadaviek tohto nariadenia.

According to Regulation (EC) No. 1907/2006 (REACH), a safety data sheet must be provided solely for substances and preparations. Batteries are not affected by the requirements of this Regulation

1. Identifikačné údaje chemickej látky a výrobcu

Product Designation and Name of the Manufacturer

Identifikačné údaje: <i>Identification</i>	Kategória produktu: <i>Product category</i>	Lítium-iónová batéria <i>Lithium-ion battery</i>
	Názov modelu: <i>Model name</i>	4S2P
	Menovité napätie: <i>Nominal voltage</i>	14.4V
	Menovitá kapacita: <i>Nominal capacity</i>	5.0Ah
	Menovitá energia: <i>Nominal energy</i>	72Wh
	Chemický systém: <i>Chemical system</i>	Lítium-oxid mangánatý/grafit <i>Lithium manganese oxide / Graphite</i>
	Nabíjateľný: <i>Rechargeable</i>	Áno <i>Yes</i>

Výrobca: <i>Manufacturer</i>	Názov a sídlo: <i>Name and address</i>	REMS GmbH & Co KG Stuttgarter Straße 83 D-71332 Waiblingen
	Tel. č. / <i>phone:</i>	+49 (0) 7151/ 1707-0
	Fax / <i>fax:</i>	+49 (0) 7151/ 1707-110
	E-mail / <i>e-mail:</i>	info@rems.de

Tel: +49 (0)7151-1707-0

Fax: +49 (0)7151-1707-110

Amtsgericht Stuttgart HRA 728253

Persönlich haftender Gesellschafter: Föll GmbH

Amtsgericht Stuttgart HRB260321

E-Mail: info@rems.de

Internet: www.rems.de

Geschäftsführer:

Dr.-Ing. Christoph Föll-Laubengeiger

Dr.-Ing. Rudolf Wagner

2. Identifikácia nebezpečnosti:

Possible Hazards:

Klasifikácia: Menovitá energia tejto lítium-iónovej batérie je > 100 Wh. Rôzne nariadenia o preprave obsahujú osobitné ustanovenia.

Classification: *This lithium-ion battery has a nominal energy of > 100Wh, which is why it is subject to certain special provisions under the hazardous substances law.*

Nebezpečenstvá: Pri nesprávnej manipulácii s lítium-iónovými batériami sa zvyšuje riziko vzniku požiaru, výbuchu alebo popálenia chemickými látkami. Batériu neskratujte, neprepichujte, nehádzte do ohňa, nestláčajte, ani sa ju nesnažte násilím vybiť alebo vystaviť teplotám vyšším ako je deklarováný rozsah prevádzkovej teploty produktu. Pokyny si pozorne prečítajte. Za bežných podmienok používania sú chemikálie a kovy uložené v uzatvorenej kovovej schránke a nie sú vystavené vonkajšiemu prostrediu. Riziko expozície sa vzťahuje iba na prípady nesprávnej manipulácie (mechanickej, termálnej, elektrickej), ktorá má za následok aktivovanie bezpečnostných valcov a/alebo prasknutie obalu batérie. V závislosti od okolností môže nasledovať vytekanie elektrolytu, reakcia materiálov elektródy s vlhkom/vodou alebo odvdzdušenie/vznietenie/výbuch batérie.

Hazards: *When handled improperly, lithium-ion batteries may explode, or cause fire or chemical burns. Batteries must not be short-circuited, punctured, thrown into fire, crushed, immersed in water, forcibly discharged or exposed to temperatures exceeding the product's specified operating range. Please read the operating instructions thoroughly. The escape of and contact with any hazardous and toxic substances is not possible under normal conditions of use. A risk of exposure only exists in case of improper (mechanical, thermal, electrical) use which leads to the activation of safety valves and/or the rupture of the battery housing. Depending on the surrounding circumstances, the following might occur: electrolyte leakage, reaction of the electrode materials with moisture/water or battery venting/fire/explosion.*

Toxicita: Ak sa batéria vznieti, výpary môžu podráždiť oči, pokožku a dýchacie ústrojenstvo.

Toxicity: *If a battery burns, smoke or vapors are generated. These may cause eye, skin and respiratory tract irritations.*

Tel: +49 (0)7151-1707-0

Fax: +49 (0)7151-1707-110

Amtsgericht Stuttgart HRA 728253

Persönlich haftender Gesellschafter: Föll GmbH

Amtsgericht Stuttgart HRB260321

E-Mail: info@rems.de

Internet: www.rems.de

Geschäftsführer:

Dr.-Ing. Christoph Föll-Laubengeiger

Dr.-Ing. Rudolf Wagner

3. Zloženie a informácie o zložkách

Composition and Information About the Individual Components

Batéria sa skladá z týchto zložiek:

The following components are contained in the sealed cell.

Časť	Názov materiálu	Koncentrácia rozsah (hmot. %)	Číslo CAS
Kladná elektróda	Prechod medzi lítiovým a kovovým oxidátom Li[M]m[O]n	20~60	12190-79-3 12057-17-9 182442-95-1
Báza kladnej elektródy	Hliník	1~10	7429-90-5
Záporná elektróda	Uhlík	10~30	7440-44-0
Báza zápornej elektródy	Meď	1~15	7440-44-0
Elektrolyt	Organický elektrolyt primárne obsahuje ester-uhličitan	5~25	Dôverné
Vonkajšie puzdro	Hliník, železo, plast s hliníkovým laminátom	1~30	7429-90-5; 7439-89-6

Component	Material name	Concentration range (wt %)	CAS number
Positive electrode	Lithium transition metal oxidate Li[M]m[O]n	20~60	12190-79-3 12057-17-9 182442-95-1
Positive electrode's base	Aluminum	1~10	7429-90-5
Negative electrode	Carbon	10~30	7429-90-5
Negative electrode's base	Copper	1~15	7440-44-0
Electrolyte	Organic electrolyte principally involves ester carbonate	5~25	Confidential
Outer case	Aluminum, iron, aluminum laminated plastic	1~30	7429-90-5; 7439-89-6

Tel: +49 (0)7151-1707-0

Fax: +49 (0)7151-1707-110

Amtsgericht Stuttgart HRA 728253

Persönlich haftender Gesellschafter: Föll GmbH

Amtsgericht Stuttgart HRB260321

E-Mail: info@rems.de

Internet: www.rems.de

Geschäftsführer:

Dr.-Ing. Christoph Föll-Laubengeiger

Dr.-Ing. Rudolf Wagner

4. Opatrenia prvej pomoci

First Aid Measures

Chemikálie sú uložené v uzatvorených kovových schránkach. Za bežných podmienok používania sa riziko expozície vytvorí iba vtedy, ak dôjde k nesprávnej mechanickej manipulácii s batériou.

The chemicals are contained in a sealed housing so that they cannot escape during normal use.

Leakage may only be caused as a result of mechanical damage to the housing.

Ak dôjde k vytekaniu chemikálií, postupujte podľa týchto krokov:

If chemicals do leak, the following must be observed:

- | | |
|----------------------------|--|
| Vdýchnutie: | Obsah otvoreného puzdra batérie môže spôsobiť podráždenie dýchacích ciest. Zabezpečte čerstvý vzduch a zavolajte lekára. |
| <i>Inhalation:</i> | <i>Escaping gases may cause respiratory tract irritation. Immediately ventilate or leave the room to get into fresh air. In more serious cases, call a doctor immediately.</i> |
| Kontakt s pokožkou: | Obsah otvoreného puzdra batérie môže spôsobiť podráždenie pokožky. Postihnutú pokožku umyte mydlom a vodou. |
| <i>Skin contact:</i> | <i>Skin irritations may occur. Thoroughly wash the skin with soap and water.</i> |
| Kontakt s očami: | Obsah otvoreného puzdra batérie môže spôsobiť podráždenie očí. Ihneď dôkladne vyumývajte oči vodou počas 15 minút a vyhľadajte lekársku pomoc. |
| <i>Eye contact:</i> | <i>Eye irritations may occur. Immediately and thoroughly rinse the eyes with water for 15 minutes then seek medical assistance.</i> |

5. Protipožiarne opatrenia

Fire Fighting Measures

- | | |
|---------------------------|--|
| V prípade požiaru: | Používajte iba suché chemické hasiace prístroje. |
| <i>In case of fire:</i> | <i>Only use Class D (dry powder) fire extinguishers.</i> |
| Upozornenie: | Pred hasením požiaru sa uistite, že stojíte v smere vetra. Takto zabránite vdýchnutiu toxických výparov. |
| <i>Caution:</i> | <i>Before you start extinguishing the fire, be sure to go to the side of the fire from which the wind is coming. In this way, you will not inhale any toxic vapours.</i> |

Tel: +49 (0)7151-1707-0
Fax: +49 (0)7151-1707-110
Amtsgericht Stuttgart HRA 728253
Persönlich haftender Gesellschafter: Föll GmbH
Amtsgericht Stuttgart HRB260321





E-Mail: info@rems.de
Internet: www.rems.de
Geschäftsführer:
Dr.-Ing. Christoph Föll-Laubengeiger
Dr.-Ing. Rudolf Wagner

6. Opatrenia pri náhodnom uvoľnení

Measures to Be Implemented in Case of Accidental Leakage

Vytečenú tekutinu elektrolytu utrite savou handrou.
Leaked electrolyte fluid should be wiped up with an absorbent cloth.

Ak uniklo veľké množstvo elektrolytu, oblečte si:
Personal protective equipment should be worn in case of larger leakages:

-  **ochranné oblečenie**
protective clothing
-  **plynovú masku ako ochranu pred organickými plynmi**
gas mask for protection against organic gases
-  **ochranné okuliare**
safety goggles
-  **ochranné rukavice**
protective gloves

7. Manipulácia a skladovanie

Handling and Storage

- Manipulácia:** Batériu neotvárajte. Batériu nestláčajte, nerozoberajte, nehádzte o zem ani nespájkujte.
Handling: Neither open, crush nor disassemble the battery, nor let it drop from a great height nor solder anything onto it.
- Nabíjanie:** Nabíjajte pri teplote 0 °C až +45 °C.
Batériu nabíjajte iba pomocou nabíjačky, ktorá je určená na nabíjanie tejto batérie.
*Charging: The charging temperature must be between +32 °F and +113 °F.
Only use the charger designated for this battery.*
- Vybíjanie:** Batériu vybíjajte pri teplote -20 °C až +60 °C.
Discharging: The battery may only be discharged at temperatures from -4 °F to +140 °F.
- Upozornenie:** Nesprávne zaobchádzanie s batériou môže spôsobiť požiar alebo výbuch!
Caution: Improper handling may cause fire or explosion!
- Skladovanie:** Teplota: -20 °C až +40 °C do 3 mesiacov
Storage: Temperature: -4 °F to +104 °F, for less than 3 months
Rozsah vlhkosti: 0 % až 80 %
Humidity range: 0 % to 80 %
Miestnosť s dostatočným vetraním / *Store in a well-ventilated place.*
Skrat môže viesť k náhodnému vznieteniu. / *Short circuits may cause fires.*
Batériu neskladujte spolu s kovovými predmetmi. / *Do not store along with other metal objects.*

Tel: +49 (0)7151-1707-0

Fax: +49 (0)7151-1707-110

Amtsgericht Stuttgart HRA 728253

Persönlich haftender Gesellschafter: Föll GmbH

Amtsgericht Stuttgart HRB260321

E-Mail: info@rems.de

Internet: www.rems.de

Geschäftsführer:

Dr.-Ing. Christoph Föll-Laubengeiger

Dr.-Ing. Rudolf Wagner

8. Kontroly expozície a osobná ochrana

Monitoring of the Stored Goods and Personal Protective Equipment

Je nutné dodržiavať pokyny uvedené v bode 7. Neustále monitorujte, či sa teplota nachádza v rámci uvedeného rozsahu. Takisto zabezpečte dostatočné vetranie a vlhkosť v rámci uvedeného rozsahu. Bežné používanie produktu si nevyžaduje použitie ochranných prostriedkov.

Observe the information stated in Section 7. Continuously monitor the storage temperature so as to ensure that it is within the specified limits. Apart from that, it is required to ensure good ventilation and that the humidity does not exceed the specified limits. No protective equipment is required during normal handling.

9. Fyzikálne a chemické vlastnosti

Physical and Chemical Properties

Vzhľad:	8 článkov v puzdre
<i>Appearance:</i>	<i>Housing with 8 cells</i>
Hmotnosť:	520 g
<i>Weight:</i>	<i>520 g</i>
Chemické vlastnosti:	pozri bod 3
<i>Chemical properties:</i>	<i>see Section 3</i>

10. Stabilita a reaktivita

Stability and Reactivity

V prípade skladovania dlhšieho ako 12 mesiacov dôjde k zníženiu kapacity batérie a ku skráteniu jej životnosti. Ak však v akomkoľvek prípade alebo za akýchkoľvek okolností dôjde k vytekaniu elektrolytu, môže sa poškodiť plastové puzdro.

Storage periods of more than 12 months will decrease the battery's capacity and expected lifespan. Electrolyte leakages may damage the housing on the inside.

11. Toxikologické informácie

Toxicological Information

Ak sa batéria bude používať obvyklým spôsobom, nedôjde k vytečeniu elektrolytu, a teda ani ku kontaktu s jej toxickými zložkami.

The escape of and contact with any hazardous and toxic substances is not possible under normal conditions of use.

Tel: +49 (0)7151-1707-0

Fax: +49 (0)7151-1707-110

Amtsgericht Stuttgart HRA 728253

Persönlich haftender Gesellschafter: Föll GmbH

Amtsgericht Stuttgart HRB260321

E-Mail: info@rems.de

Internet: www.rems.de

Geschäftsführer:

Dr.-Ing. Christoph Föll-Laubengeiger

Dr.-Ing. Rudolf Wagner

12. Ekologické informácie

Environment-Related Information

Ak sa batéria bude používať obvyklým spôsobom, nedôjde k znečisteniu životného prostredia. Batéria však obsahuje chemické látky, ktoré pre životné prostredie môžu predstavovať nebezpečenstvo. Pri likvidácii použitých batérií vždy postupujte podľa pokynov uvedených v bode 13.

Provided that the battery is handled properly, environmental pollution does not occur. After use, however, the battery must be disposed of separately as it contains hazardous chemicals. See Section 13.

13. Opatrenia pri zneškodňovaní

Disposal Instructions

Batéria predstavuje nebezpečný odpad.

Likvidácia batérie s bežným odpadom sa nepovoľuje.

Ak je batéria už nepoužiteľná, zlikvidujte ju v súlade s platnými nariadeniami o recyklácii.

Batteries are classified as hazardous waste.

The battery may only be disposed of by returning it to an authorized collection point.

It is prohibited to dispose of the battery with normal household waste.

14. Informácie o doprave

Transportation information

Všeobecné vysvetlivky

General explanation

Na prepravu týchto produktov letecky, po cestných, železničných komunikáciách a mori sa vzťahujú obmedzujúce nariadenia. V ďalšom texte nájdete odkazy na tieto nariadenia. Keďže legislatíva je predmetom častých zmien, prepravca je povinný zaistiť, aby produkty boli prepravované v súlade s legislatívou, ktorá je platná a vykonateľná v čase prepravy. V prípade potreby sa obráťte na výrobcu produktu, ktorý vám v týchto záležitostiach pomôže.

Restrictive regulations are applicable to the product's transport by air, road, rail or sea. Below you will find references to these regulations. As these laws are subject to frequent changes, the transport company shall ensure that the products are transported according to the regulations applicable at the time of shipment. Please contact the manufacturer of the products if you need any assistance in this matter.

Preprava batérie podľa smernice UN 3480/3481 (1).

Musia sa uplatňovať predpisy pre batérie s nominálnym výkonom ≤ 100 Wh.

Transportation of the battery according to Directive UN 3480/3481 (1).

The regulations for batteries with nominal energy ≤ 100 Wh have to be used.

Batéria **musí** byť chránená pred skratom.

The battery **must** be protected against short circuits.

Tel: +49 (0)7151-1707-0
Fax: +49 (0)7151-1707-110
Amtsgericht Stuttgart HRA 728253
Persönlich haftender Gesellschafter: Föll GmbH
Amtsgericht Stuttgart HRB260321

E-Mail: info@rems.de
Internet: www.rems.de
Geschäftsführer:
Dr.-Ing. Christoph Föll-Laubengeiger
Dr.-Ing. Rudolf Wagner

Nariadenie o preprave závisí od regiónu a spôsobu prepravy.

The transport regulations depend on the country-specific provisions and on the type of transport.

Každý kus balenia musí byť označený nasledovnými nálepkami a musí byť priložený sprievodný list, ako je uvedené nižšie:

Each package must be marked with the following labels. Furthermore, it is required to enclose an accompanying note as stated below

Nálepky pre prepravu na ceste/železnici a more

Labelling for transport by road/rail and sea



+ nálepka s odosielateľom a príjemcom
+ Label stating the consignor and consignee

ADR/RID/IMDG-Code: Batéria spĺňa požiadavky osobitného predpisu 188.
The battery meets the requirements of special provision 188.

Nálepka pre zaslanie / letecká doprava CAO

Shipping label/cargo aircraft only (CAO)



+ nálepka s odosielateľom a príjemcom
+ Label stating the consignor and consignee

Sprievodný list / *Accompanying note:* UN 3480 LITHIUM-ION BATTERIES, 9, -, (E)

Osobitného predpisu 188

special provision 188

ICAO-TI/IATA-DGR: Predpisy o obaloch 965, časť II alebo časť IB
Packing instruction 965, Part II or Part IB

Tel: +49 (0)7151-1707-0

Fax: +49 (0)7151-1707-110

Amtsgericht Stuttgart HRA 728253

Persönlich haftender Gesellschafter: Föll GmbH

Amtsgericht Stuttgart HRB260321

E-Mail: info@rems.de

Internet: www.rems.de

Geschäftsführer:

Dr.-Ing. Christoph Föll-Laubengeiger

Dr.-Ing. Rudolf Wagner

15. Predpisy a pravidlá

Provisions and Regulations

Upozornenie na predpisy na prepravu nebezpečného tovaru:

References to provisions concerning the transport of hazardous goods:

Zákon o preprave nebezpečných vecí (GGBefG)

Transportation of Dangerous Goods Act (GGBefG)

Nariadenie pre prepravu nebezpečných vecí po ceste, železnici a vnútrozemskou lodnou prepravou (GGVSEB)

Ordinance on the Transport of Dangerous Goods by Road, Rail and Inland Waterways (GGVSEB)

Nariadenie pre námornú prepravu nebezpečných vecí (GGVSee)

Ordinance on the Transport of Dangerous Goods by Sea (GGVSee)

Zákon o leteckej preprave (LuftVG), Schvaľovací poriadok pre leteckú dopravu (LuftVZO)

Air Traffic Act (LuftVG), Air Traffic Licensing Order (LuftVZO)

Európska dohoda o medzinárodnej cestnej preprave nebezpečných vecí (ADR)

European Agreement concerning the International Carriage of Dangerous Goods by Road (ADR)

Poriadok pre medzinárodnú železničnú prepravu nebezpečných vecí (RID)

Regulation concerning the International Carriage of Dangerous Goods by Rail (RID)

Európska dohoda o preprave nebezpečných vecí po vnútrozemských vodných cestách (ADN)

European Agreement concerning the International Carriage of Dangerous Goods by Inland Navigation (ADN)

Medzinárodný kód pre medzinárodnú námornú prepravu nebezpečných látok (IMDG kód)

International Maritime Dangerous Goods Code (IMDG-Code)

International Civil Aviation Organization -

Technické predpisy pre leteckú prepravu nebezpečných vecí (ICAO-TI)

Technical Instructions for the Safe Transport of Dangerous Goods by Air (ICAO-TI)

International Air Transport Association -

Predpisy pre prepravu nebezpečných vecí (IATA-DGR)

Dangerous Goods Regulations (IATA-DGR)

Tel: +49 (0)7151-1707-0

Fax: +49 (0)7151-1707-110

Amtsgericht Stuttgart HRA 728253

Persönlich haftender Gesellschafter: Föll GmbH

Amtsgericht Stuttgart HRB260321

E-Mail: info@rems.de

Internet: www.rems.de

Geschäftsführer:

Dr.-Ing. Christoph Föll-Laubengeiger

Dr.-Ing. Rudolf Wagner

16. Stav nabitia podľa zmeny Predpisov IATA pre nebezpečný náklad od 1. apríla 2016

State of Charge in Accordance with the Changes to the IATA Dangerous Goods Regulations Effective from 1 April 2016

V súlade so zmenou Predpisov IATA pre nebezpečný náklad, ktoré vstupujú do platnosti k 1. aprílu 2016, potvrdzuje REMS GmbH & Co KG, že lítiovo-iónové akumulátory (UN 3480) vyrábané od 1. apríla 2016 sú odovzdávané na dopravu so stavom nabitia (SoC) vo výške maximálne 30 % ich dimenzovanej kapacity.

In accordance with the changes to the IATA Dangerous Goods Regulations, which entered into force on 1 April 2016, REMS GmbH & Co KG confirms that all lithium-ion batteries (UN 3480) manufactured from 1 April 2016 will be handed over for transportation with their state of charge (SoC) not exceeding 30% of their design capacity.

17. Ostatné informácie

Other information

Tieto informácie boli zostavené podľa najlepšieho vedomia a svedomia. REMS GmbH & Co KG však vylučuje akúkoľvek záruku za presnosť, spoľahlivosť a úplnosť informácií v tejto karte. V prípade konkrétneho použitia je používateľ povinný ubezpečiť sa o vhodnosti, úplnosti a relevantnosti týchto informácií.

This information has been meticulously compiled to the best of our knowledge and belief. REMS GmbH & Co KG excludes any warranty whatsoever for the accuracy, reliability or completeness of the information provided herein! It is the user's responsibility to check the information's suitability, completeness and timeliness with regard to the relevant purpose of use.

Tel: +49 (0)7151-1707-0

Fax: +49 (0)7151-1707-110

Amtsgericht Stuttgart HRA 728253

Persönlich haftender Gesellschafter: Föll GmbH

Amtsgericht Stuttgart HRB260321

E-Mail: info@rems.de

Internet: www.rems.de

Geschäftsführer:

Dr.-Ing. Christoph Föll-Laubengeiger

Dr.-Ing. Rudolf Wagner

TERMÉKBIZTONSÁGI ADATLAP MATERIAL SAFETY DATA SHEET

Lítiumion-mangán-oxid akkumulátor
Lithium ion manganese oxide battery

Tételszám: 571555 R14H / Item no.: 571555 R14H

Az 1907/2006/EK (Reach) rendelet értelmében biztonsági adatlapot csak anyagok és készítmények esetében kötelező rendelkezésre bocsátani. Az akkumulátorokra nem vonatkoznak a Rendelet előírásai.

According to Regulation (EC) No. 1907/2006 (REACH), a safety data sheet must be provided solely for substances and preparations. Batteries are not affected by the requirements of this Regulation.

1. Az anyag és a gyártó azonosító adatai

Product Designation and Name of the Manufacturer

Azonosító adatok:

Identification

Termékkategória:

Product category

Lítium-ion akkumulátor

Lithium-ion battery

Modell megnevezése:

Model name

4S2P

Névleges feszültség:

Nominal voltage

14.4V

Névleges kapacitás:

Nominal capacity

5.0Ah

Névleges energia:

Nominal energy

72Wh

Kémiai rendszer:

Chemical system

Lítium-mangánoxid / Grafit

Lithium manganese oxide / Graphite

Újratölthető:

Rechargeable

Igen

Yes

Gyártó:

Manufacturer

Neve és címe:

Name and address

REMS GmbH & Co KG

Stuttgarter Straße 83

D-71332 Waiblingen

Telefonszám / *phone*:

+49 (0) 7151/ 1707-0

Telefax / *fax*:

+49 (0) 7151/ 1707-110

E-mail cím / *e-mail*:

info@rems.de

Tel: +49 (0)7151-1707-0
Fax: +49 (0)7151-1707-110
Amtsgericht Stuttgart HRA 728253
Persönlich haftender Gesellschafter: Föll GmbH
Amtsgericht Stuttgart HRB260321

E-Mail: info@rems.de
Internet: www.rems.de
Geschäftsführer:
Dr.-Ing. Christoph Föll-Laubengeiger
Dr.-Ing. Rudolf Wagner

2. Veszélyek azonosítása:

Possible Hazards:

- Osztályozás:** Ez a lítium-ion újratölthető akkumulátor > 100Wh névleges energiával rendelkezik, melyre a különböző szállítási előírások speciális rendelkezései vonatkoznak.
- Classification:** *This lithium-ion battery has a nominal energy of > 100Wh, which is why it is subject to certain special provisions under the hazardous substances law.*
- Veszélyek:** A lítium-ion akkumulátorok nem megfelelő használata esetén fennállhat a tűzveszély vagy a vegyi égés kockázata. Tilos az akkumulátorokat rövidre zárni, felszúrni, tűzbe dobni, összetörni, vízbe dobni, kisülésre kényszeríteni, valamint a termékre meghatározott működési hőmérsékleti tartomány fölötti hőmérsékleteknek kitenni. Figyelmesen olvassa el a használati útmutatót. Normál üzemeltetési körülmények között az akkumulátorban előforduló vegyi anyagok és fémek zárt tartályban találhatóak, így nincsenek kitéve a külső hatásoknak. A külső hatásoknak való kitétség kockázata helytelen kezelés (nem megfelelő használat, helytelen hőmérsékleti és elektromos feltételek) esetén megnő, és a biztonsági szelepek működésbe lépéséhez és/vagy az akkumulátor burkolatának sérüléséhez vezethet. Mindezt a körülményektől függően elektrolitszivárgás, az elektródanyagok nedvességgel/vízzel való reakcióba lépése vagy az akkumulátor felhasadása/lángra lobbanása/felrobbanása követheti.
- Hazards:** *When handled improperly, lithium-ion batteries may explode, or cause fire or chemical burns. Batteries must not be short-circuited, punctured, thrown into fire, crushed, immersed in water, forcibly discharged or exposed to temperatures exceeding the product's specified operating range. Please read the operating instructions thoroughly.*
The escape of and contact with any hazardous and toxic substances is not possible under normal conditions of use. A risk of exposure only exists in case of improper (mechanical, thermal, electrical) use which leads to the activation of safety valves and/or the rupture of the battery housing. Depending on the surrounding circumstances, the following might occur: electrolyte leakage, reaction of the electrode materials with moisture/water or battery venting/fire/explosion
- Toxicitás:** Az akkumulátor égése esetén felszabaduló gőzök irritálhatják a szemet, bőrt és a légutakat.
- Toxicity:** *If a battery burns, smoke or vapors are generated. These may cause eye, skin and respiratory tract irritations.*

Tel: +49 (0)7151-1707-0

Fax: +49 (0)7151-1707-110

Amtsgericht Stuttgart HRA 728253

Persönlich haftender Gesellschafter: Föll GmbH

Amtsgericht Stuttgart HRB260321

E-Mail: info@rems.de

Internet: www.rems.de

Geschäftsführer:

Dr.-Ing. Christoph Föll-Laubengeiger

Dr.-Ing. Rudolf Wagner

3. Összetétel és az összetevőkre vonatkozó adatok

Composition and Information About the Individual Components

Az akkumulátor az alábbi összetevőkből áll:

The following components are contained in the sealed cell

Rész	Anyag megnevezése	Koncentrációtartomány (wt %)	CAS szám
Pozitív elektróda	lítium átmeneti fém oxidok Li[M]m[O]n	20~60	12190-79-3 12057-17-9 182442-95-1
Pozitív elektróda alapja	Alumínium	1~10	7429-90-5
Negatív elektróda	Szén	10~30	7440-44-0
Negatív elektróda alapja	Réz	1~15	7440-44-0
Elektrolit	Főleg észter-karbonátot tartalmazó szerves elektrolit	5~25	Bizalmas
Külső burkolat	Alumínium, vas, laminált alumínium és műanyag	1~30	7429-90-5; 7439-89-6

Component	Material name	Concentration range (wt %)	CAS number
Positive electrode	Lithium transition metal oxidate Li[M]m[O]n	20~60	12190-79-3 12057-17-9 182442-95-1
Positive electrode's base	Aluminum	1~10	7429-90-5
Negative electrode	Carbon	10~30	7429-90-5
Negative electrode's base	Copper	1~15	7440-44-0
Electrolyte	Organic electrolyte principally involves ester carbonate	5~25	Confidential
Outer case	Aluminum, iron, aluminum laminated plastic	1~30	7429-90-5; 7439-89-6

Tel: +49 (0)7151-1707-0

Fax: +49 (0)7151-1707-110

Amtsgericht Stuttgart HRA 728253

Persönlich haftender Gesellschafter: Föll GmbH

Amtsgericht Stuttgart HRB260321

E-Mail: info@rems.de

Internet: www.rems.de

Geschäftsführer:

Dr.-Ing. Christoph Föll-Laubengeiger

Dr.-Ing. Rudolf Wagner

4. Elsősegély-nyújtási intézkedések

First Aid Measures

Az akkumulátorban előforduló vegyi anyagok zárt tartályban találhatóak. Megfelelő használati körülmények mellett kitétség csak nem rendeltetészerű mechanikai igénybevétel esetén fordulhat elő.

The chemicals are contained in a sealed housing so that they cannot escape during normal use.

Leakage may only be caused as a result of mechanical damage to the housing.

Vegyianyagok szivárgása esetén kövesse az alábbi utasításokat:

If chemicals do leak, the following must be observed:

Belélegzés:	A felbontott akkumulátor tartalmának belélegzése légúti irritációt okozhat. Szellőztessen, és azonnal hívjon orvost.
<i>Inhalation:</i>	<i>Escaping gases may cause respiratory tract irritation. Immediately ventilate or leave the room to get into fresh air. In more serious cases, call a doctor immediately.</i>
Bőrrel való érintkezés:	A felbontott akkumulátor tartalma bőrrel történő érintkezés esetén bőrirritációt eredményezhet. Az érintett bőrfelületet tisztítsa meg vízzel és szappannal.
<i>Skin contact:</i>	<i>Skin irritations may occur. Thoroughly wash the skin with soap and water.</i>
Szembe kerülés:	A felbontott akkumulátor tartalmának szembe jutása esetén szemirritáció léphet fel. Azonnal öblítse ki a szemet bő vízzel 15 percen keresztül, majd forduljon orvoshoz.
<i>Eye contact:</i>	<i>Eye irritations may occur. Immediately and thoroughly rinse the eyes with water for 15 minutes then seek medical assistance.</i>

5. Tűzvédelmi intézkedések

Fire Fighting Measures

Tűz esetén:	Kizárólag száraz vegyi tűzoltó készüléket használjon.
<i>In case of fire:</i>	<i>Only use Class D (dry powder) fire extinguishers.</i>
Vigyázat:	A tűzoltás megkezdése előtt bizonyosodjon meg róla, hogy nem az Ön irányába fújja-e a szél a tüzet. Ellenkező esetben belélegezheti a mérgező gőzöket.
<i>Caution:</i>	<i>Before you start extinguishing the fire, be sure to go to the side of the fire from which the wind is coming. In this way, you will not inhale any toxic vapours.</i>

Tel: +49 (0)7151-1707-0

Fax: +49 (0)7151-1707-110

Amtsgericht Stuttgart HRA 728253

Persönlich haftender Gesellschafter: Föll GmbH

Amtsgericht Stuttgart HRB260321

E-Mail: info@rems.de

Internet: www.rems.de

Geschäftsführer:

Dr.-Ing. Christoph Föll-Laubengeiger

Dr.-Ing. Rudolf Wagner

6. Intézkedések véletlenszerű expozíciónál





Measures to Be Implemented in Case of Accidental Leakage

Nedvszívó kendő segítségével törölje le a kiszivárgott elektrolitfolyadékot.

Leaked electrolyte fluid should be wiped up with an absorbent cloth.

Nagy mennyiségű kiszivárgott elektrolitfolyadék esetén a következőket kell viselnie:

Personal protective equipment should be worn in case of larger leakages:

-  **védőruházat**
protective clothing
-  **gázálarc szerves gázokhoz**
gas mask for protection against organic gases
-  **védőszemüveg**
safety goggles
-  **hosszú szárú védőkesztyű**
protective gloves

7. Kezelés és tárolás

Handling and Storage

Kezelés: Ne nyissa fel az akkumulátort. Ne zúzza szét, ne szedje szét, ne ejtse el, illetve ne forrassa .
Handling: *Neither open, crush nor disassemble the battery, nor let it drop from a great height nor solder anything onto it.*

Töltés: +32 °F (0 °C) és +113 °F (45°C) közötti hőmérsékleten töltsse.
Kizárólag ehhez az akkumulátorhoz alkalmas akkumulátortöltőt használjon.
Charging: *The charging temperature must be between +32 °F and +113 °F.
Only use the charger designated for this battery.*

Kisütés: Kisütés -4 °F (-20°C) és +140 °F (60°C) közötti hőmérsékleten.
Discharging: *The battery may only be discharged at temperatures from -4 °F to +140 °F.*

Vigyázat: A helytelen kezelés tűz- vagy robbanásveszélyt okozhat!
Caution: *Improper handling may cause fire or explosion!*

Tárolás: Hőmérséklet: -20 °C és +40 °C között, kevesebb, mint 3 hónapig
Storage: *Temperature: -4 °F to +104°F, for less than 3 months*
Páratartalom: 0 % – 80 %
Humidity range: 0 % to 80 %

Jól szellőző helyen használható. / *Store in a well-ventilated place.*

A rövidzárlat égéshez vezethet. / *Short circuits may cause fires.*

Ne tárolja fémtárgyak közelében. / *Do not store along with other metal objects.*

Tel: +49 (0)7151-1707-0

Fax: +49 (0)7151-1707-110

Amtsgericht Stuttgart HRA 728253

Persönlich haftender Gesellschafter: Föll GmbH

Amtsgericht Stuttgart HRB260321

E-Mail: info@rems.de

Internet: www.rems.de

Geschäftsführer:

Dr.-Ing. Christoph Föll-Laubengeiger

Dr.-Ing. Rudolf Wagner

8. Az expozíció megelőzése és személyi védelem

Monitoring of the Stored Goods and Personal Protective Equipment

Tartsa be a 7. pontban meghatározott utasításokat. Gondoskodjon róla, hogy a tárolási hőmérséklet mindig a megadott tartományon belül legyen. Biztosítson továbbá megfelelő szellőzést, valamint ügyeljen arra, hogy a tároló helyiség páratartalma a megadott tartományon belül legyen. Normális körülmények között való használat esetén védőfelszerelés használata nem szükséges.

Observe the information stated in Section 7. Continuously monitor the storage temperature so as to ensure that it is within the specified limits. Apart from that, it is required to ensure good ventilation and that the humidity does not exceed the specified limits. No protective equipment is required during normal handling.

9. Fizikai és kémiai tulajdonságok

Physical and Chemical Properties

Megjelenés: <i>Appearance:</i>	8 cella burkolatban <i>Housing with 8 cells</i>
Tömeg: <i>Weight:</i>	520 g 520 g
Kémiai tulajdonságok: <i>Chemical properties:</i>	lásd a 3. pontot <i>see Section 3</i>

10. Stabilitás és reakcióképesség

Stability and Reactivity

A 12 hónapot meghaladó tárolás során csökken az akkumulátor kapacitása, és élettartama is rövidebb lesz. Ha bármilyen esetben vagy körülmények között elektrolitszivárgás lépne fel, az a műanyag burkolat sérülését jelentheti.

Storage periods of more than 12 months will decrease the battery's capacity and expected lifespan. Electrolyte leakages may damage the housing on the inside.

11. Toxikológiai adatok

Toxicological Information

Normál használat esetén nem fordulhat elő szivárgás, így nem léphet fel érintkezés az akkumulátor toxikus összetevőivel.

The escape of and contact with any hazardous and toxic substances is not possible under normal conditions of use.

Tel: +49 (0)7151-1707-0

Fax: +49 (0)7151-1707-110

Amtsgericht Stuttgart HRA 728253

Persönlich haftender Gesellschafter: Föll GmbH

Amtsgericht Stuttgart HRB260321

E-Mail: info@rems.de

Internet: www.rems.de

Geschäftsführer:

Dr.-Ing. Christoph Föll-Laubengeiger

Dr.-Ing. Rudolf Wagner

12. Környezetvédelmi adatok

Environment-Related Information

Az akkumulátor normál körülmények között történő használata esetén nem léphet fel környezetszennyezés. Az akkumulátor azonban olyan vegyi anyagokat tartalmaz, amelyek károsak lehetnek a környezetre. Az elhasznált akkumulátorok ártalmatlanítása során mindig kövesse a 13. pontban foglalt utasításokat.

Provided that the battery is handled properly, environmental pollution does not occur. After use, however, the battery must be disposed of separately as it contains hazardous chemicals. See Section 13.

13. Ártalmatlanítási szempontok

Disposal Instructions

Az akkumulátor veszélyes hulladék.

A hagyományos hulladékkal együtt történő hulladékkezelése tilos.

Amennyiben az akkumulátor használhatatlanná vált, azt a vonatkozó újrahasznosítási előírások szerint ártalmatlanítsa.

Batteries are classified as hazardous waste.

The battery may only be disposed of by returning it to an authorized collection point.

It is prohibited to dispose of the battery with normal household waste.

14. Szállítási információk

Transportation information

Általános magyarázat

General explanation

Korlátozó szabályozások vannak érvényben ezeknek a termékeknek a légi, közúti, vasúti vagy vízi szállítását illetően. Az alábbiakban utalásokat talál ezekre a szabályozásokra. Mivel a szabályozások folyamatos változások alatt állnak, a szállítónak kötelessége biztosítani, hogy ezek a termékek megfeleljenek a szállítás időpontjában érvényben lévő mindenkor érvényes törvényi előírásoknak. Szükség esetén további tájékoztatásért vegye fel a kapcsolatot a gyártóval.

Restrictive regulations are applicable to the product's transport by air, road, rail or sea. Below you will find references to these regulations. As these laws are subject to frequent changes, the transport company shall ensure that the products are transported according to the regulations applicable at the time of shipment. Please contact the manufacturer of the products if you need any assistance in this matter.

Szállítás az UN 3480/3481 irányelv szerint (1).

100 Wh-nál kisebb teljesítményű elem használandó

Transportation of the battery according to Directive UN 3480/3481 (1).

The regulations for batteries with nominal energy ≤ 100 Wh have to be used.

Az akkumulátort védeni **kell** a rövidzárlattól.

The battery **must** be protected against short circuits.

Tel: +49 (0)7151-1707-0

Fax: +49 (0)7151-1707-110

Amtsgericht Stuttgart HRA 728253

Persönlich haftender Gesellschafter: Föll GmbH

Amtsgericht Stuttgart HRB260321

E-Mail: info@rems.de

Internet: www.rems.de

Geschäftsführer:

Dr.-Ing. Christoph Föll-Laubengeiger

Dr.-Ing. Rudolf Wagner

A szállításra vonatkozó szabályozások térség és szállítási mód függvényében eltérőek lehetnek. /

The transport regulations depend on the country-specific provisions and on the type of transport.

Minden szállítmánynak a következő címkével és kísérő megjegyzéssel kell rendelkeznie, lásd alább:

Each package must be marked with the following labels. Furthermore, it is required to enclose an accompanying note as stated below

Közúti/vasúti és Lásd szállítás címkézése

Labelling for transport by road/rail and sea



+ Címke a feladó / címzett címével

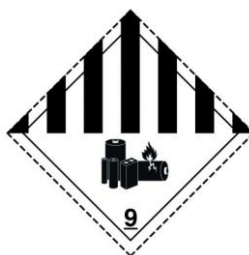
+ Label stating the consignor and consignee

ADR/RID/IMDG-Code: Az elem teljesíti a 188-as előírást.

The battery meets the requirements of special provision 188.

Szállítási címke/Cargo Aircraft csak CAO

Shipping label/cargo aircraft only (CAO)



+ Címke a feladó / címzett címével

+ Label stating the consignor and consignee

Borítólevél / Accompanying note: UN 3480 LITHIUM-ION BATTERIES, 9, -, (E)

188-as előírást

special provision 188

ICAO-TI/IATA-DGR:

Csomagolási utasítások 965, rész II vagy rész IB

Packing instruction 965, Part II or Part IB

Tel: +49 (0)7151-1707-0
Fax: +49 (0)7151-1707-110
Amtsgericht Stuttgart HRA 728253
Persönlich haftender Gesellschafter: Föll GmbH
Amtsgericht Stuttgart HRB260321

E-Mail: info@rems.de
Internet: www.rems.de
Geschäftsführer:
Dr.-Ing. Christoph Föll-Laubengeiger
Dr.-Ing. Rudolf Wagner

15. Szabályozások és Rendelet

Provisions and Regulations

Hivatkozás a veszélyes áruk szállítására vonatkozó rendelkezésekre:

References to provisions concerning the transport of hazardous goods:

Veszélyes Áruk Szállításáról Szóló Törvény (GGBefG)
Transportation of Dangerous Goods Act (GGBefG)

A Veszélyes Áruk Közúti, Vasúti és Belvízi Szállításáról Szóló Rendelet (GGVSEB)
Ordinance on the Transport of Dangerous Goods by Road, Rail and Inland Waterways (GGVSEB)

A Veszélyes Áruk Tengeri Szállításáról Szóló Rendelet (GGVSee)
Ordinance on the Transport of Dangerous Goods by Sea (GGVSee)

Légiforgalmi Törvény (LuftVG), Légiforgalmi Engedélyezési Rendelet (LuftVZO)
Air Traffic Act (LuftVG), Air Traffic Licensing Order (LuftVZO)

A Veszélyes Áruk Nemzetközi Közúti Szállításáról Szóló Európai Megállapodás (ADR)
European Agreement concerning the International Carriage of Dangerous Goods by Road (ADR)

A Veszélyes Áruk Nemzetközi Vasúti Fuvarozásáról Szóló Szabályzat (RID)
Regulation concerning the International Carriage of Dangerous Goods by Rail (RID)

A Veszélyes Áruk Nemzetközi Belvízi Szállításáról Szóló Európai Megállapodás (ADN)
European Agreement concerning the International Carriage of Dangerous Goods by Inland Navigation (ADN)

A Veszélyes Árukról Szóló Nemzetközi Tengeri Kódex (IMDG-kódex)
International Maritime Dangerous Goods Code

International Civil Aviation Organization -
A Veszélyes Áruk Légi Szállításának Biztonságát Szolgáló Műszaki Utasítás (ICAO-TI)
Technical Instructions for the Safe Transport of Dangerous Goods by Air (ICAO-TI)

International Air Transport Association -
Veszélyes Áru Szállítási Szabályzatai (IATA-DGR)
Dangerous Goods Regulations (IATA-DGR)

Tel: +49 (0)7151-1707-0
Fax: +49 (0)7151-1707-110
Amtsgericht Stuttgart HRA 728253
Persönlich haftender Gesellschafter: Föll GmbH
Amtsgericht Stuttgart HRB260321

E-Mail: info@rems.de
Internet: www.rems.de
Geschäftsführer:
Dr.-Ing. Christoph Föll-Laubengeiger
Dr.-Ing. Rudolf Wagner

16. Töltöttségi szint a IATA-rendelet 2016. április 1-jétől hatályos változásainak megfelelően

State of Charge in Accordance with the Changes to the IATA Dangerous Goods Regulations Effective from 1 April 2016

A IATA veszélyes árukra vonatkozó előírásainak 2016. április 1-jétől hatályos változásaival összhangban, az REMS GmbH & Co KG megerősíti, hogy 2016. április 1-jétől az összes gyártott lítium-ion akkumulátort csak olyan névleges töltési állapotban küldik el, amely nem haladja meg tervezett névleges kapacitásuk 30% -át.

In accordance with the changes to the IATA Dangerous Goods Regulations, which entered into force on 1 April 2016, REMS GmbH & Co KG confirms that all lithium-ion batteries (UN 3480) manufactured from 1 April 2016 will be handed over for transportation with their state of charge (SoC) not exceeding 30% of their design capacity.

17. További tájékoztatás

Other Information

A fenti információkat legjobb ismereteink szerint és a tőlünk telhető legnagyobb pontossággal állítottuk össze. Az REMS GmbH & Co KG ugyanakkor nem vállal garanciát a rendelkezésre bocsátott információk pontosságáért, megbízhatóságáért vagy teljességéért. A felhasználó saját érdeke és felelőssége meggyőződni a megadott információk megfelelőségét, teljességét és alkalmasságát illetően.

This information has been meticulously compiled to the best of our knowledge and belief. REMS GmbH & Co KG excludes any warranty whatsoever for the accuracy, reliability or completeness of the information provided herein! It is the user's responsibility to check the information's suitability, completeness and timeliness with regard to the relevant purpose of use.

Tel: +49 (0)7151-1707-0

Fax: +49 (0)7151-1707-110

Amtsgericht Stuttgart HRA 728253

Persönlich haftender Gesellschafter: Föll GmbH

Amtsgericht Stuttgart HRB260321

E-Mail: info@rems.de

Internet: www.rems.de

Geschäftsführer:

Dr.-Ing. Christoph Föll-Laubengeiger

Dr.-Ing. Rudolf Wagner

SIGURNOSNO-TEHNIČKI LIST PROIZVODA MATERIAL SAFETY DATA SHEET

Litij-ionska mangan-oksidna baterija
Lithium ion manganese oxide battery

Artikel br.: 571555 R14H / Item no.: 571555 R14H

Sukladno Uredbi (EZ) br. 1907/2006 (Reach), samo za tvari i pripravke mora se dostaviti sigurnosno-tehnički list. Baterije nisu obuhvaćene zahtjevima ove Uredbe.

According to Regulation (EC) No. 1907/2006 (REACH), a safety data sheet must be provided solely for substances and preparations. Batteries are not affected by the requirements of this Regulation.

1. Identifikacija tvari i proizvođača

Product Designation and Name of the Manufacturer

Identifikacija: <i>Identification</i>	Kategorija proizvoda: <i>Product category</i>	Litij-ionska baterija <i>Lithium-ion battery</i>
	Naziv modela: <i>Model name</i>	4S2P
	Nazivni napon: <i>Nominal voltage</i>	14.4V
	Nazivna snaga: <i>Nominal capacity</i>	5.0Ah
	Nazivna energija: <i>Nominal energy</i>	72Wh
	Kemijski sustav: <i>Chemical system</i>	Lithium-Manganoxid / Graphit <i>Lithium manganese oxide / Graphite</i>
	Punjiva: <i>Rechargeable</i>	Da <i>Yes</i>

Proizvođač: <i>Manufacturer</i>	Naziv i adresa: <i>Name and address</i>	REMS GmbH & Co KG Stuttgarter Straße 83 D-71332 Waiblingen
	Telefon / <i>phone</i> :	+49 (0) 7151-1707-0
	Telefaks / <i>fax</i> :	+49 (0) 7151-1707-110
	e-pošta / <i>e-mail</i> :	info@rems.de

Tel: +49 (0)7151-1707-0
Fax: +49 (0)7151-1707-110
Amtsgericht Stuttgart HRA 728253
Persönlich haftender Gesellschafter: Föll GmbH
Amtsgericht Stuttgart HRB260321

E-Mail: info@rems.de
Internet: www.rems.de
Geschäftsführer:
Dr.-Ing. Christoph Föll-Laubengeiger
Dr.-Ing. Rudolf Wagner

2. Identifikacija štetnosti

Possible Hazards

- Klasifikacija:** Ova litij-ionska punjiva baterija ima nazivnu energiju > 100Wh. Postoje posebne odredbe u različitim propisima o transportu.
- Classification:** *This lithium-ion battery has a nominal energy of > 100Wh, which is why it is subject to certain special provisions under the hazardous substances law.*
- Štetnosti:** Litij-ionske baterije u slučaju nepravilnog postupanja s njima mogu predstavljati rizik od požara ili eksplozije ili kemijskih opekline. Nemojte ih izlagati kratkom spoju, probijati, spaljivati, gnječiti, uranjati u tekućinu, silom prazniti niti izlagati temperaturama višim od deklariranog opsega radne temperature proizvoda. Pozorno pročitajte upute. Pod redovitim uvjetima uporabe, kemijske tvari i metali sadržani su u zabrtvljenoj kantici i nisu izloženi vanjskim utjecajima. Rizik od izlaganja samo u slučaju nepropisne uporabe (mehaničke, toplinske, električne) koja dovodi do aktiviranja sigurnosnih ventila i/ili do probijanja kućišta baterije. Ovisno od okolnosti, može uslijediti istjecanje elektrolita, reakcija materijala na elektrodama sa vlagom/vodom ili eksplozija/zapaljenje/ispuštanje sadržaja baterije.
- Hazards:** *When handled improperly, lithium-ion batteries may explode, or cause fire or chemical burns. Batteries must not be short-circuited, punctured, thrown into fire, crushed, immersed in water, forcibly discharged or exposed to temperatures exceeding the product's specified operating range. Please read the operating instructions thoroughly. The escape of and contact with any hazardous and toxic substances is not possible under normal conditions of use. A risk of exposure only exists in case of improper (mechanical, thermal, electrical) use which leads to the activation of safety valves and/or the rupture of the battery housing. Depending on the surrounding circumstances, the following might occur: electrolyte leakage, reaction of the electrode materials with moisture/water or battery venting/fire/explosion.*
- Toksičnost:** U slučaju gorenja baterije, isparenja mogu prouzročiti nadražaj očiju, kože i dišnoga trakta.
- Toxicity:** *If a battery burns, smoke or vapors are generated. These may cause eye, skin and respiratory tract irritations.*

Tel: +49 (0)7151-1707-0

Fax: +49 (0)7151-1707-110

Amtsgericht Stuttgart HRA 728253

Persönlich haftender Gesellschafter: Föll GmbH

Amtsgericht Stuttgart HRB260321

E-Mail: info@rems.de

Internet: www.rems.de

Geschäftsführer:

Dr.-Ing. Christoph Föll-Laubengeiger

Dr.-Ing. Rudolf Wagner

3. Sastav i informacije o sastojcima

Composition and Information About the Individual Components

Baterija sadržava sljedeće.

The following components are contained in the sealed cell.

Dio	Naziv materijala	Opseg koncentracije (wt %)	CAS broj /CAS number
Pozitivna elektroda	Litijski prijelaz metalni oksidat Li[M]m[O]n	20~60	12190-79-3 12057-17-9 182442-95-1
Osnovica pozitivne elektrode	Aluminij	1~10	7429-90-5
Negativna elektroda	Ugljik	10~30	7440-44-0
Osnovica negativne elektrode	Bakar	1~15	7440-44-0
Elektrolit	Organički elektrolit u biti se radi o ester karbonatu	5~25	Povjerljivo
Vanjsko ležište	Aluminij, željezo, aluminijem laminirana plastika	1~30	7429-90-5; 7439-89-6

Component	Material name	Concentration range (wt %)	CAS number
Positive electrode	Lithium transition metal oxidate Li[M]m[O]n	20~60	12190-79-3 12057-17-9 182442-95-1
Positive electrode's base	Aluminum	1~10	7429-90-5
Negative electrode	Carbon	10~30	7429-90-5
Negative electrode's base	Copper	1~15	7440-44-0
Electrolyte	Organic electrolyte principally involves ester carbonate	5~25	Confidential
Outer case	Aluminum, iron, aluminum laminated plastic	1~30	7429-90-5; 7439-89-6

Tel: +49 (0)7151-1707-0

Fax: +49 (0)7151-1707-110

Amtsgericht Stuttgart HRA 728253

Persönlich haftender Gesellschafter: Föll GmbH

Amtsgericht Stuttgart HRB260321

E-Mail: info@rems.de

Internet: www.rems.de

Geschäftsführer:

Dr.-Ing. Christoph Föll-Laubengeiger

Dr.-Ing. Rudolf Wagner

4. Mjere prve pomoći

First Aid Measures

Kemijske tvari sadržane su u zabrtvljenim kanticama. Pod redovitim uvjetima uporabe, do rizika od izloženosti dolazi samo ako se baterija nepravilnim postupanjem mehanički ošteti.

The chemicals are contained in a sealed housing so that they cannot escape during normal use.

Leakage may only be caused as a result of mechanical damage to the housing.

Ako dođe do istjecanja kemijskih tvari, slijedite upute:

If chemicals do leak, the following must be observed:

Udisanje: Sadržaj otvorene baterije može prouzročiti nadražaj dišnih organa. Osigurajte svježi zrak i pozovite liječnika.

Inhalation: Escaping gases may cause respiratory tract irritation. Immediately ventilate or leave the room to get into fresh air. In more serious cases, call a doctor immediately.

Doticaj s kožom: Sadržaj otvorene baterije može prouzročiti nadražaj kože. Operite kožu sa vodom i sapunom.

Skin contact: Skin irritations may occur. Thoroughly wash the skin with soap and water.

Doticaj s očima: Sadržaj otvorene baterije može prouzročiti nadražaj očiju. Odmah temeljito isperite oči s vodom tijekom 15 minuta i zatražite liječničku njegu.

Eye contact: Eye irritations may occur. Immediately and thoroughly rinse the eyes with water for 15 minutes then seek medical assistance.

5. Protupožarne mjere

Fire Fighting Measures

U slučaju požara: Rabite samo suha kemijska sredstva za gašenje.

In case of fire: Only use Class D (dry powder) fire extinguishers.

Opres: Prije nego što počnete gasiti požar, provjerite jeste li u suprotnom smjeru od smjera puhanja vjetra u odnosu na vatru. Na taj način nećete udisati toksična isparenja.

Caution: Before you start extinguishing the fire, be sure to go to the side of the fire from which the wind is coming. In this way, you will not inhale any toxic vapours.

Tel: +49 (0)7151-1707-0

Fax: +49 (0)7151-1707-110

Amtsgericht Stuttgart HRA 728253

Persönlich haftender Gesellschafter: Föll GmbH

Amtsgericht Stuttgart HRB260321

E-Mail: info@rems.de

Internet: www.rems.de

Geschäftsführer:

Dr.-Ing. Christoph Föll-Laubengeiger

Dr.-Ing. Rudolf Wagner

6. Mjere kod slučajnog ispuštanja sadržaja





Measures to Be Implemented in Case of Accidental Leakage

Obrišite elektrolitičku tekućinu koja istekne krpom koja dobro upija.

Leaked electrolyte fluid should be wiped up with an absorbent cloth.

Ako ima puno elektrolita koji je istekao, trebali biste nositi:

Personal protective equipment should be worn in case of larger leakages:

-  **zaštitnu odjeću**
protective clothing
-  **gas-masku protiv organskih plinova**
gas mask for protection against organic gases
-  **sigurnosne naočale**
safety goggles
-  **rukavice**
protective gloves

7. Rukovanje i čuvanje

Handling and Storage

- Rukovanje:** Ne otvarajte bateriju. Ne gnječite, ne rastavljajte, ne ispuštajte i ne lemite.
Handling: *Neither open, crush nor disassemble the battery, nor let it drop from a great height nor solder anything onto it.*
- Punjenje:** Punite u granicama temperature od +0°C do +45°C.
Punite samo posebnim punjačem namijenjenim za ovu bateriju.
Charging: *The charging temperature must be between +32 °F and +113 °F.*
Only use the charger designated for this battery.
- Pražnjenje:** Praznite u granicama temperature od -20 °C do +60 °C.
Discharging: *The battery may only be discharged at temperatures from -4 °F to +140 °F.*
- Opres:** Pogrešnim rukovanjem možete prouzročiti požar ili eksploziju.
Caution: *Improper handling may cause fire or explosion.*
- Čuvanje:** Temperatura: -20 °C do +40 °C tijekom manje od 3 mjeseca
Storage: *Temperature: -4 °F to +113 °F for less than 3 months*
Opseg vlažnosti: 0 % do 80 %
Humidity range: 0 % to 80 %
Dobro prozračen prostor / *Store in a well-ventilated place*
Kratki spoj može dovesti do opekline. / *Short circuits may cause fires.*
Ne čuvajte zajedno s oštrim predmetima. / *Do not store along with other metal objects.*

Tel: +49 (0)7151-1707-0

Fax: +49 (0)7151-1707-110

Amtsgericht Stuttgart HRA 728253

Persönlich haftender Gesellschafter: Föll GmbH

Amtsgericht Stuttgart HRB260321

E-Mail: info@rems.de

Internet: www.rems.de

Geschäftsführer:

Dr.-Ing. Christoph Föll-Laubengeiger

Dr.-Ing. Rudolf Wagner

8. Kontrola izloženosti i osobna zaštita

Monitoring of the Stored Goods and Personal Protective Equipment

Moraju se poštivati savjeti sukladno točki 7. Pratite da temperatura čuvanja bude u svako vrijeme u okviru granica. Isto tako, osigurajte dobru prozračenost i opseg vlažnosti u okviru granica. Kod redovite uporabe nije potrebna nikakva zaštitna oprema.

Observe the information stated in Section 7. Continuously monitor the storage temperature so as to ensure that it is within the specified limits. Apart from that, it is required to ensure good ventilation and that the humidity does not exceed the specified limits. No protective equipment is required during normal handling.

9. Fizičke i kemijske značajke

Physical and Chemical Properties

Izgled:	8 stanica u kućištu
<i>Appearance:</i>	<i>Housing with 8 cells</i>
Težina:	520 g
<i>Weight:</i>	<i>520 g</i>
Kemijske značajke:	vidi točku 3
<i>Chemical properties:</i>	<i>see Section 3</i>

10. Stabilnost i reaktivnost

Stability and Reactivity

Tijekom čuvanja više od 12 mjeseci, snaga će se smanjiti, a skratit će se i rok trajnosti baterije. Ako u bilo kom slučaju ili okolnosti dođe do istjecanja elektrolita, plastično kućište se može oštetiti.

Storage periods of more than 12 months will decrease the battery's capacity and expected lifespan. Electrolyte leakages may damage the housing on the inside.

11. Toksikološke informacije

Toxicological Information

Kod redovite uporabe neće biti istjecanja i otuda neće biti doticaja s toksičnim sastojcima baterije.

The escape of and contact with any hazardous and toxic substances is not possible under normal conditions of use.

Tel: +49 (0)7151-1707-0
Fax: +49 (0)7151-1707-110
Amtsgericht Stuttgart HRA 728253
Persönlich haftender Gesellschafter: Föll GmbH
Amtsgericht Stuttgart HRB260321

E-Mail: info@rems.de
Internet: www.rems.de
Geschäftsführer:
Dr.-Ing. Christoph Föll-Laubengeiger
Dr.-Ing. Rudolf Wagner

12. Ekološke informacije

Environment-Related Information

U slučaju redovite uporabe baterije ne dolazi do zagađivanja okoliša. Međutim, baterija sadrži kemikalije koje mogu ugroziti okoliš. Pri odlaganju rabljenih baterija uvijek slijedite upute opisane u točki 13. ^[13] _[SEP]

Provided that the battery is handled properly, environmental pollution does not occur. After use, however, the battery must be disposed of separately as it contains hazardous chemicals. See Section 13

13. Pitanja vezana za odlaganje

Disposal Instructions

Ova baterija predstavlja štetan otpad.

Nije ju dozvoljeno odlagati sa općim otpadom.

Ako se baterija više ne može rabiti, odložite ju sukladno s važećim propisima za recikliranje.

Batteries are classified as hazardous waste.

The battery may only be disposed of by returning it to an authorized collection point.

It is prohibited to dispose of the battery with normal household waste.

14. Informacije o transportu

Transportation information

Opća pojašnjenja

General explanation

Na otpremu ove robe zrakom, cestom, željeznicom ili morem primjenjuju se ograničavajući propisi.

Reference na te propise pronaći ćete u donjem tekstu. Budući da zakonodavstvo podliježe čestim izmjenama, subjekt koji vrši transport mora osigurati transport robe sukladno važećim i primjenjivim propisima u vrijeme otpreme.

Po potrebi se obratite proizvođaču za pomoć u svezi ovih pitanja.

Restrictive regulations are applicable to the product's transport by air, road, rail or sea. Below you will find references to these regulations. As these laws are subject to frequent changes, the transport company shall ensure that the products are transported according to the regulations applicable at the time of shipment. Please contact the manufacturer of the products if you need any assistance in this matter.

Transport baterije sukladno direktivi UN 3480/3481 (1).

Potrebna je primjena propisa za baterije s nazivnom snagom ≤ 100 Wh

Transportation of the battery according to Directive UN 3480/3481 (1).

The regulations for batteries with nominal energy ≤ 100 Wh have to be used.

Baterija **mora** biti zaštićena od kratkoga spoja.

*The battery **must** be protected against short circuits.*

Tel: +49 (0)7151-1707-0
Fax: +49 (0)7151-1707-110
Amtsgericht Stuttgart HRA 728253
Persönlich haftender Gesellschafter: Föll GmbH
Amtsgericht Stuttgart HRB260321

E-Mail: info@rems.de
Internet: www.rems.de
Geschäftsführer:
Dr.-Ing. Christoph Föll-Laubengeiger
Dr.-Ing. Rudolf Wagner

Transportna regulativa ovisi o regionu i načinu prijevoza.

The transport regulations depend on the country-specific provisions and on the type of transport.

Svako transportno pakiranje mora biti označeno sljedećim naljepnicama te mora biti priložen popratni list kako je navedeno dolje:

Each package must be marked with the following labels. Furthermore, it is required to enclose an accompanying note as stated below

Naljepnice za cestovni/tračnični transport i more

Labelling for transport by road/rail and sea



+ naljepnica s pošiljateljem i primateljem
+ Label stating the consignor and consignee

ADR/RID/IMDG-Code: Baterija ispunjava uvjete prema posebnom propisu 188.
The battery meets the requirements of special provision 188.

Naljepnica za slanje / zračni prijevoz CAO

Shipping label/cargo aircraft only (CAO)



+ naljepnica s pošiljateljem i primateljem
+ Label stating the consignor and consignee

Popratni list / Accompanying note: UN 3480 LITHIUM-ION BATTERIES, 9, -, (E)

Posebnom propisu 188

special provision 188

ICAO-TI/IATA-DGR: Propisi za pakiranje 965, dio II ili dio IB
Packing instruction 965, Part II or Part IB

Tel: +49 (0)7151-1707-0

Fax: +49 (0)7151-1707-110

Amtsgericht Stuttgart HRA 728253

Persönlich haftender Gesellschafter: Föll GmbH

Amtsgericht Stuttgart HRB260321

E-Mail: info@rems.de

Internet: www.rems.de

Geschäftsführer:

Dr.-Ing. Christoph Föll-Laubengeiger

Dr.-Ing. Rudolf Wagner

15. Propisi i pravila

Provisions and Regulations

Informacije o propisima u vezi prijevoza opasnih tvari:

References to provisions concerning the transport of hazardous goods:

Zakon o prijevozu opasnih tvari (GGBefG)

Transportation of Dangerous Goods Act (GGBefG)

Pravilnik o prijevozu opasnog tereta cestom, željeznicom i unutarnjim plovnim putovima (GGVSEB)

Ordinance on the Transport of Dangerous Goods by Road, Rail and Inland Waterways (GGVSEB)

Pravilnik o prijevozu opasnog tereta morskim putem (GGVSee)

Ordinance on the Transport of Dangerous Goods by Sea (GGVSee)

Zakon o zračnom prometu (LuftVG), Uredba o licenciranju u zračnom prometu (LuftVZO)

Air Traffic Act (LuftVG), Air Traffic Licensing Order (LuftVZO)

Europski sporazum o međunarodnom cestovnom prijevozu opasnih tvari(ADR)

European Agreement concerning the International Carriage of Dangerous Goods by Road (ADR)

Pravilnik o međunaordnom prijevozu opasnih tvari željeznicom (RID)

Regulation concerning the International Carriage of Dangerous Goods by Rail (RID)

Europski sporazim o prijevozu opasnih tvari unutarnjim plovnim putovima (ADN)

European Agreement concerning the International Carriage of Dangerous Goods by Inland Navigation (ADN)

Međunarodni kod za pomorski prijevoz opasnih tvari (IMDG-Code)

International Maritime Dangerous Goods Code (IMDG-Code)

International Civil Aviation Organization-

Tehnički propisi za zračni prijevoz opasnih tvari (ICAO-TI)

Technical Instructions for the Safe Transport of Dangerous Goods by Air (ICAO-TI)

International Air Transport Association-

Propisi za prijevoz opasnih tvari (IATA-DGR)

Dangerous Goods Regulations (IATA-DGR)

Tel: +49 (0)7151-1707-0

Fax: +49 (0)7151-1707-110

Amtsgericht Stuttgart HRA 728253

Persönlich haftender Gesellschafter: Föll GmbH

Amtsgericht Stuttgart HRB260321

E-Mail: info@rems.de

Internet: www.rems.de

Geschäftsführer:

Dr.-Ing. Christoph Föll-Laubengeiger

Dr.-Ing. Rudolf Wagner

16. Napunjeno stanje u skladu s izmjenama IATA Pravilnika o opasnoj robi od 1. travnja 2016.

State of Charge in Accordance with the Changes to the IATA Dangerous Goods Regulations Effective from 1 April 2016

U skladu s izmjenom IATA Pravilnika o opasnoj robi koja stupa na snagu 1. travnja 2016., REMS GmbH & Co KG potvrđuje da se litij-ionske baterije (UN 3480) proizvedene nakon tog datuma predaju za transport s napunjenim stanjem (SoC) od najviše 30 % vlastitog kapaciteta.

In accordance with the changes to the IATA Dangerous Goods Regulations, which entered into force on 1 April 2016, REMS GmbH & Co KG confirms that all lithium-ion batteries (UN 3480) manufactured from 1 April 2016 will be handed over for transportation with their state of charge (SoC) not exceeding 30% of their design capacity.

17. Ostale informacije

Other information

Ove informacije prikupljene su točno i koliko mi najbolje znamo i vjerujemo. Međutim, REMS GmbH & Co KG isključuje svako jamstvo po pitanju točnosti, pouzdanosti ili potpunosti sadržanih informacija.

Odgovornost je na korisniku da se na sebi zadovoljavajući način uvjeri u prikladnost, potpunost i relevantnost ovih informacija za osobito za svoju uporabu.

This information has been meticulously compiled to the best of our knowledge and belief. REMS GmbH & Co KG excludes any warranty whatsoever for the accuracy, reliability or completeness of the information provided herein! It is the user's responsibility to check the information's suitability, completeness and timeliness with regard to the relevant purpose of use.

Tel: +49 (0)7151-1707-0

Fax: +49 (0)7151-1707-110

Amtsgericht Stuttgart HRA 728253

Persönlich haftender Gesellschafter: Föll GmbH

Amtsgericht Stuttgart HRB260321

E-Mail: info@rems.de

Internet: www.rems.de

Geschäftsführer:

Dr.-Ing. Christoph Föll-Laubengeiger

Dr.-Ing. Rudolf Wagner

VARNOSTNI LIST MATERIAL SAFETY DATA SHEET

Litij-ionska manganova oksidna baterija
Lithium ion manganese oxide battery

Številka izdelka: 571555 R14H / Item no.: 571555 R14H

Po Uredbi (ES) št. 1907/2006 (Reach) je treba zagotoviti varnostna navodila samo za snovi in preparate. Zahtevki te uredbe ne veljajo za baterije.

According to Regulation (EC) No. 1907/2006 (REACH), a safety data sheet must be provided solely for substances and preparations. Batteries are not affected by the requirements of this Regulation.

1. Določitev snovi in proizvajalca

Product Designation and Name of the Manufacturer

Določitev: <i>Identification</i>	Kategorija izdelka: <i>Product category</i>	Litij-ionska baterija <i>Lithium-ion battery</i>
	Ime modela: <i>Model name</i>	4S2P
	Nazivna napetost: <i>Nominal voltage</i>	14.4V
	Nazivna kapaciteta: <i>Nominal capacity</i>	5.0Ah
	Nazivna energija: <i>Nominal energy</i>	72Wh
	Tip baterije: <i>Chemical system</i>	Litij-manganov oksid/grafit <i>Lithium manganese oxide / Graphite</i>
	Polnljiva: <i>Rechargeable</i>	Da Yes

Proizvajalec: <i>Manufacturer</i>	Ime in naslov: <i>Name and address</i>	REMS GmbH & Co KG Stuttgarter Straße 83 D-71332 Waiblingen
	Telefon / <i>phone:</i>	+49 (0) 7151/ 1707-0
	Telefaks / <i>fax:</i>	+49 (0) 7151/ 1707-110
	E-pošta / <i>e-mail:</i>	info@rems.de

Tel: +49 (0)7151-1707-0

Fax: +49 (0)7151-1707-110

Amtsgericht Stuttgart HRA 728253

Persönlich haftender Gesellschafter: Föll GmbH

Amtsgericht Stuttgart HRB260321

E-Mail: info@rems.de

Internet: www.rems.de

Geschäftsführer:

Dr.-Ing. Christoph Föll-Laubengeiger

Dr.-Ing. Rudolf Wagner

2. Določitev tveganj:

Possible Hazards:

- Razvrščanje:** Litij-ionska baterija za ponovno polnjenje ima nazivno moč > 100 Wh. V različnih prevoznih predpisih veljajo posebna določila.
- Classification:** *This lithium-ion battery has a nominal energy of > 100Wh, which is why it is subject to certain special provisions under the hazardous substances law.*
- Tveganja:** Če neprimerno ravnate z litij-ionsko baterijo, obstaja nevarnost požara ali eksplozije. Baterije ne izpostavljajte kratkemu stiku, ne predirajte, sežigate, tlačite, potaplajte, prisilno praznite ali izpostavljajte temperaturam, višjim od navedenih delovnih temperatur izdelka. Navodila pazljivo preberite. Kemikalije in kovine so pod normalnimi pogoji uporabe shranjene v zatesnjeni posodi in niso izpostavljene zunanosti. Do izpostavljenosti lahko pride le v primeru neprimernega ravnanja (mehaničnega, termičnega, električnega), ko pride do vklopa varnostnih ventilov in/ali do zloma baterijskega ohišja. Odvisno od okoliščin lahko sledijo: razlitje elektrolitov, elektrodne snovi lahko reagirajo z vlago/vodo ali pride do puščanja/požara/explozije baterije.
- Hazards:** *When handled improperly, lithium-ion batteries may explode, or cause fire or chemical burns. Batteries must not be short-circuited, punctured, thrown into fire, crushed, immersed in water, forcibly discharged or exposed to temperatures exceeding the product's specified operating range. Please read the operating instructions thoroughly. The escape of and contact with any hazardous and toxic substances is not possible under normal conditions of use. A risk of exposure only exists in case of improper (mechanical, thermal, electrical) use which leads to the activation of safety valves and/or the rupture of the battery housing. Depending on the surrounding circumstances, the following might occur: electrolyte leakage, reaction of the electrode materials with moisture/water or battery venting/fire/explosion.*
- Toksičnost:** Če baterija gori, lahko hlapi dražijo oči, kožo in dihala.
- Toxicity:** *If a battery burns, smoke or vapors are generated. These may cause eye, skin and respiratory tract irritations.*

Tel: +49 (0)7151-1707-0

Fax: +49 (0)7151-1707-110

Amtsgericht Stuttgart HRA 728253

Persönlich haftender Gesellschafter: Föll GmbH

Amtsgericht Stuttgart HRB260321

E-Mail: info@rems.de

Internet: www.rems.de

Geschäftsführer:

Dr.-Ing. Christoph Föll-Laubengeiger

Dr.-Ing. Rudolf Wagner

3. Sestava in informacije o sestavinah

Composition and Information About the Individual Components

Baterija vsebuje naslednje:

The following components are contained in the sealed cell

Del	Ime snovi	Razpon koncentracije (wt %)	Številka CAS
Pozitivna elektroda	Litijev prehod v kovinski oksidat Li[M]m[O]n	20~60	12190-79-3 12057-17-9 182442-95-1
Baza pozitivne elektrode	Aluminij	1~10	7429-90-5
Negativna elektroda	Ogljik	10~30	7429-90-5
Baza negativne elektrode	Baker	1~15	7440-44-0
Elektrolit	Organski elektrolit primarno vsebuje karbonatni ester	5~25	Zaupno
Zunanja obloga	Aluminij, železo, aluminijeva lamelirana plastika	1~30	7429-90-5; 7439-89-6

Component	Material name	Concentration range (wt %)	CAS number
Positive electrode	Lithium transition metal oxidate Li[M]m[O]n	20~60	12190-79-3 12057-17-9 182442-95-1
Positive electrode's base	Aluminum	1~10	7429-90-5
Negative electrode	Carbon	10~30	7429-90-5
Negative electrode's base	Copper	1~15	7440-44-0
Electrolyte	Organic electrolyte principally involves ester carbonate	5~25	Confidential
Outer case	Aluminum, iron, aluminum laminated plastic	1~30	7429-90-5; 7439-89-6

Tel: +49 (0)7151-1707-0

Fax: +49 (0)7151-1707-110

Amtsgericht Stuttgart HRA 728253

Persönlich haftender Gesellschafter: Föll GmbH

Amtsgericht Stuttgart HRB260321

E-Mail: info@rems.de

Internet: www.rems.de

Geschäftsführer:

Dr.-Ing. Christoph Föll-Laubengeiger

Dr.-Ing. Rudolf Wagner

4. Ukrepi prve pomoči

First Aid Measures

Kemikalije so v zatesnjenih posodah. Do tveganja izpostavljenosti pride le, če z baterijo mehansko neprimerno ravnate.

The chemicals are contained in a sealed housing so that they cannot escape during normal use. Leakage may only be caused as a result of mechanical damage to the housing.

Če pride do uhajanja kemikalij, sledite navodilom:

If chemicals do leak, the following must be observed

- | | |
|----------------------|--|
| Vdihavanje: | Vsebina odprte baterije lahko povzroči draženje dihal. Zagotovite svež zrak in pokličite zdravnika. |
| <i>Inhalation:</i> | <i>Escaping gases may cause respiratory tract irritation. Immediately ventilate or leave the room to get into fresh air. In more serious cases, call a doctor immediately.</i> |
| Stik s kožo: | Vsebina odprte baterije lahko povzroči draženje kože. Operite kožo z milom in vodo. |
| <i>Skin contact:</i> | <i>Skin irritations may occur. Thoroughly wash the skin with soap and water.</i> |
| Stik z očmi: | Vsebina odprte baterije lahko povzroči draženje oči. Takoj začnite spirati oči z vodo, temeljito spirajte 15 minut in poiščite zdravniško pomoč. |
| <i>Eye contact:</i> | <i>Eye irritations may occur. Immediately and thoroughly rinse the eyes with water for 15 minutes then seek medical assistance.</i> |

5. Protipožarni ukrepi

Fire Fighting Measures

- | | |
|--------------------------|--|
| V primeru požara: | Uporabite le suhe kemične gasilne aparate. |
| <i>In case of fire:</i> | <i>Only use Class D (dry powder) fire extinguishers.</i> |
| Opozorilo: | Pred gašenjem požara se prepričajte, da ognja ne nosi proti vam, da ne bi vdihavali strupenih hlapov. |
| <i>Caution:</i> | <i>Before you start extinguishing the fire, be sure to go to the side of the fire from which the wind is coming. In this way, you will not inhale any toxic vapours.</i> |

Tel: +49 (0)7151-1707-0

Fax: +49 (0)7151-1707-110

Amtsgericht Stuttgart HRA 728253

Persönlich haftender Gesellschafter: Föll GmbH

Amtsgericht Stuttgart HRB260321

E-Mail: info@rems.de

Internet: www.rems.de

Geschäftsführer:

Dr.-Ing. Christoph Föll-Laubengeiger

Dr.-Ing. Rudolf Wagner

6. Ukrepi ob nezgodnih izpustih

Measures to Be Implemented in Case of Accidental Leakage

Razlito elektrolitsko tekočino pobrišite z vpojno krpo.

Leaked electrolyte fluid should be wiped up with an absorbent cloth.

Če je razlite elektrolitske tekočine veliko, oblecite:

Personal protective equipment should be worn in case of larger leakages:

- ↪ **zaščitno obleko**
protective clothing
- ↪ **plinsko masko za organske pline**
gas mask for protection against organic gases
- ↪ **zaščitna očala**
safety goggles
- ↪ **zaščitne rokavice**
protective gloves

7. Ravnanje in skladiščenje

Handling and Storage

- Ravnanje:** Baterije ne odpirajte. Ne predirajte, razdirajte, vrzite ali varite.
Handling: *Neither open, crush nor disassemble the battery, nor let it drop from a great height nor solder anything onto it.*
- Polnjenje:** Polnjenje na temperaturi med 0 do 45 °C.
Polnite le s polnilcem, določenim za to baterijo.
Charging: *The charging temperature must be between +32 °F and +113 °F.*
Only use the charger designated for this battery.
- Praznjenje:** Praznite na temperaturi med -20 do 60 °C.
Discharging: *The battery may only be discharged at temperatures from -4 °F to +140 °F.*
- Opozorilo:** Napačno ravnanje lahko povzroči požar ali eksplozijo!
Caution: *Improper handling may cause fire or explosion!*
- Skladiščenje:** Temperatura: -20° C do +40° C pod 3. meseci
Storage: *Temperature: -4 °F to +104°F for less than 3 months*
Razpon vlažnosti: 0 % do 80 %
Humidity range: 0 % to 80 %
Dobro prezračen prostor. / *Store in a well-ventilated place.*
Kratek stik lahko povzroči požar. / *Short circuits may cause fires*
Ne shranjujte s kovinskimi predmeti. / *Do not store along with other metal objects.*

Tel: +49 (0)7151-1707-0

Fax: +49 (0)7151-1707-110

Amtsgericht Stuttgart HRA 728253

Persönlich haftender Gesellschafter: Föll GmbH

Amtsgericht Stuttgart HRB260321

E-Mail: info@rems.de

Internet: www.rems.de

Geschäftsführer:

Dr.-Ing. Christoph Föll-Laubengeiger

Dr.-Ing. Rudolf Wagner

8. Nadzor izpostavljenosti in osebna zaščita

Monitoring of the Stored Goods and Personal Protective Equipment

Upoštevati morate priporočila iz točke 7. Nadzorujte, da je skladiščna temperatura vedno znotraj določenih meja. Zagotovite tudi dobro prezračevanje in da je razpon vlage znotraj določenih meja. Ob normalni uporabi ne potrebujete zaščitne opreme.

Observe the information stated in Section 7. Continuously monitor the storage temperature so as to ensure that it is within the specified limits. Apart from that, it is required to ensure good ventilation and that the humidity does not exceed the specified limits. No protective equipment is required during normal handling.

9. Fizikalne in kemijske lastnosti

Physical and Chemical Properties

Izgled:	8 celic v ohišju
<i>Appearance:</i>	<i>Housing with 8 cells</i>
Teža:	520 g
<i>Weight:</i>	<i>520 g</i>
Kemične lastnosti:	glej točko 3
<i>Chemical properties:</i>	<i>see Section 3</i>

10. Stabilnost in reaktivnost

Stability and Reactivity

Če baterijo skladiščite več kot 12 mesecev, se bo njena zmogljivost zmanjšala in življenjska doba skrajšala. Če v kakršnemkoli primeru pride do razlitja elektrolitov, se plastično ohišje lahko poškoduje.

Storage periods of more than 12 months will decrease the battery's capacity and expected lifespan. Electrolyte leakages may damage the housing on the inside.

11. Toksikološki podatki

Toxicological Information

Ob normalni uporabi ne bo prišlo do razlitja in torej ne bo stika s strupenimi snovmi baterije.

The escape of and contact with any hazardous and toxic substances is not possible under normal conditions of use.

Tel: +49 (0)7151-1707-0

Fax: +49 (0)7151-1707-110

Amtsgericht Stuttgart HRA 728253

Persönlich haftender Gesellschafter: Föll GmbH

Amtsgericht Stuttgart HRB260321

E-Mail: info@rems.de

Internet: www.rems.de

Geschäftsführer:

Dr.-Ing. Christoph Föll-Laubengeiger

Dr.-Ing. Rudolf Wagner

12. Ekološki podatki

Environment-Related Information

Ob normalni uporabi baterije ne bo prišlo do onesnaževanja okolja. Kljub temu vsebuje baterija kemikalije, ki lahko škodujejo okolju. Vedno, ko nameravate odvreči baterijo, sledite navodilom pod točko 13.

Provided that the battery is handled properly, environmental pollution does not occur. After use, however, the battery must be disposed of separately as it contains hazardous chemicals. See Section 13.

13. Odstranjevanje

Disposal Instructions

Baterija je nevaren odpadek.

Baterije ne smete odvreči v skupne odpadke. Če je baterija neuporabna, jo odstranite v skladu z veljavnimi predpisi o recikliranju.

Batteries are classified as hazardous waste.

The battery may only be disposed of by returning it to an authorized collection point.

It is prohibited to dispose of the battery with normal household waste.

14. Podatki o prevozu

Transportation information

Splošna razlaga

General explanation

Za odpošiljanje tega blaga po zraku, cesti, železnici ali morju veljajo omejevalni predpisi. Spodaj najdete navedbe predpisov. Ker je zakonodaja podvržena številnim spremembam, mora prevoznik zagotoviti, da se blago prevaža po veljavni zakonodaji, ki se uporablja v času odpošiljanja. Če potrebujete pomoč, stopite v stik s proizvajalcem.

Restrictive regulations are applicable to the product's transport by air, road, rail or sea. Below you will find references to these regulations. As these laws are subject to frequent changes, the transport company shall ensure that the products are transported according to the regulations applicable at the time of shipment. Please contact the manufacturer of the products if you need any assistance in this matter.

Transport baterije v skladu s smernico UN 3480/3481 (1).

Uporabljati je treba predpise za baterije, z nazivno zmogljivostjo ≤ 100 Wh.

Transportation of the battery according to Directive UN 3480/3481 (1).

The regulations for batteries with nominal energy ≤ 100 Wh have to be used.

Baterijo **morate** varovati pred kratkim stikom.

The battery **must** be protected against short circuits.

Tel: +49 (0)7151-1707-0

Fax: +49 (0)7151-1707-110

Amtsgericht Stuttgart HRA 728253

Persönlich haftender Gesellschafter: Föll GmbH

Amtsgericht Stuttgart HRB260321

E-Mail: info@rems.de

Internet: www.rems.de

Geschäftsführer:

Dr.-Ing. Christoph Föll-Laubengeiger

Dr.-Ing. Rudolf Wagner

Prevozni predpisi so odvisni od regije in načina prevoza.

The transport regulations depend on the country-specific provisions and on the type of transport.

Vsak paket mora biti opremljen z naslednjimi nalepkami in priloženo mora biti spremno pismo, kot je navedeno spodaj:

Each package must be marked with the following labels. Furthermore, it is required to enclose an accompanying note as stated below

Nalepka za prevoz po cesti/železnici in Morje

Labelling for transport by road/rail and sea



+ Nalepka s pošiljateljem in prejemnikom

+ *Label stating the consignor and consignee*

ADR/RID/IMDG-Code: Baterija izpolnjuje zahteve posebne določbe 188.

The battery meets the requirements of special provision 188.

Nalepka za pošiljanje / letalski tovorni promet (CAO)

Shipping label/cargo aircraft only (CAO)



+ Nalepka s pošiljateljem in prejemnikom

+ *Label stating the consignor and consignee*

Spremno pismo / *Accompanying note:* UN 3480 LITHIUM-ION BATTERIES, 9, -, (E)

Posebne določbe 188.

special provision 188

ICAO-TI/IATA-DGR:

Predpisi za pakiranje 965, del II ali del IB

Packing instruction 965, Part II or Part IB

Tel: +49 (0)7151-1707-0

Fax: +49 (0)7151-1707-110

Amtsgericht Stuttgart HRA 728253

Persönlich haftender Gesellschafter: Föll GmbH

Amtsgericht Stuttgart HRB260321

E-Mail: info@rems.de

Internet: www.rems.de

Geschäftsführer:

Dr.-Ing. Christoph Föll-Laubengeiger

Dr.-Ing. Rudolf Wagner

15. Zakoni in predpisi

Provisions and Regulations

Nasveti za predpise prevoza nevarnega blaga:

References to provisions concerning the transport of hazardous goods:

Zakon o prevozu nevarnega blaga (GGBefG)

Transportation of Dangerous Goods Act (GGBefG)

Odredba o nevarnem blagu cesta, železnica in celinska plovba (GGVSEB)

Ordinance on the Transport of Dangerous Goods by Road, Rail and Inland Waterways (GGVSEB)

Odredba o nevarnem morje (GGVSee)

Ordinance on the Transport of Dangerous Goods by Sea (GGVSee)

Zakon o zračnem prometu (LuftVG), Pravilnik o licenciranju zračnega prometa (LuftVZO)

Air Traffic Act (LuftVG), Air Traffic Licensing Order (LuftVZO)

Evropska konvencija o mednarodnem cestnem prevozu nevarnega blaga (ADR)

European Agreement concerning the International Carriage of Dangerous Goods by Road (ADR)

Odredba za mednarodni železniški prevoz nevarnega blaga (RID)

Regulation concerning the International Carriage of Dangerous Goods by Rail (RID)

Evropska konvencija o prevozu nevarnega blaga po celinskih vodnih poteh (ADN)

European Agreement concerning the International Carriage of Dangerous Goods by Inland Navigation (ADN)

Mednarodni pomorski zakonik o prevozu nevarnega blaga (koda IMDG)

International Maritime Dangerous Goods Code

International Civil Aviation Organization -

Tehnični predpisi za prevoz nevarnega blaga po zraku (ICAO-TI)

Technical Instructions for the Safe Transport of Dangerous Goods by Air (ICAO-TI)

International Air Transport Association -

Predpisi za prevoz nevarnega blaga (IATA-DGR)

Dangerous Goods Regulations (IATA-DGR)

Tel: +49 (0)7151-1707-0

Fax: +49 (0)7151-1707-110

Amtsgericht Stuttgart HRA 728253

Persönlich haftender Gesellschafter: Föll GmbH

Amtsgericht Stuttgart HRB260321

E-Mail: info@rems.de

Internet: www.rems.de

Geschäftsführer:

Dr.-Ing. Christoph Föll-Laubengeiger

Dr.-Ing. Rudolf Wagner

16. Stanje napolnjenosti v skladu s spremembo IATA-predpisov o nevarnem blagu do 1. aprila 2016

State of Charge in Accordance with the Changes to the IATA Dangerous Goods Regulations Effective from 1 April 2016

V skladu s spremembo Pravilnika o nevarnem blagu IATA, ki začne veljati 1. aprila 2016, REMS GmbH & Co KG potrjuje, da so litij-ionske baterije (UN 3480), izdelane od 1. aprila 2016, predane z največjo možno obremenitvijo (SoC) 30% njihove konstrukcijske zmogljivosti za prevoz.

In accordance with the changes to the IATA Dangerous Goods Regulations, which entered into force on 1 April 2016, REMS GmbH & Co KG confirms that all lithium-ion batteries (UN 3480) manufactured from 1 April 2016 will be handed over for transportation with their state of charge (SoC) not exceeding 30% of their design capacity.

17. Ostali podatki

Other Information

Te podatke smo zbrali po svojem najboljšem vedenju in prepričanju. Vendar se podjetje REMS GmbH & Co KG vzdrži vsakršnega jamstva o natančnosti, zanesljivosti ali popolnosti zbranih podatkov. Uporabnikova naloga je, da se sam pozanima o primernosti, popolnosti in ustreznosti teh podatkov za svojo osebno uporabo.

This information has been meticulously compiled to the best of our knowledge and belief. REMS GmbH & Co KG excludes any warranty whatsoever for the accuracy, reliability or completeness of the information provided herein! It is the user's responsibility to check the information's suitability, completeness and timeliness with regard to the relevant purpose of use.

Tel: +49 (0)7151-1707-0

Fax: +49 (0)7151-1707-110

Amtsgericht Stuttgart HRA 728253

Persönlich haftender Gesellschafter: Föll GmbH

Amtsgericht Stuttgart HRB260321

E-Mail: info@rems.de

Internet: www.rems.de

Geschäftsführer:

Dr.-Ing. Christoph Föll-Laubengeiger

Dr.-Ing. Rudolf Wagner

FIȘĂ DE DATE PRIVIND SIGURANȚA PRODUSULUI MATERIAL SAFETY DATA SHEET

Baterie litiu-ion cu oxid de mangan
Lithium ion manganese oxide battery

AP Nr. articol: 571555 R14H / Item no.: 571555 R14H

Conform Regulamentului (CE) nr. 1907/2006 (Reach), fișa de date privind siguranța trebuie furnizată numai pentru substanțe și preparate. Bateriile nu sunt vizate de cerințele acestui Regulament.

According to Regulation (EC) No. 1907/2006 (REACH), a safety data sheet must be provided solely for substances and preparations. Batteries are not affected by the requirements of this Regulation.

1. Identificarea substanței și a producătorului

Product Designation and Name of the Manufacturer

Identificare: <i>Identification</i>	Categoria produsului: <i>Product category</i>	Baterie litiu-ion <i>Lithium-ion battery</i>
	Nume model: <i>Model designation</i>	4S2P
	Tensiune nominală: <i>Nominal voltage</i>	14.4V
	Capacitate nominală: <i>Nominal capacity</i>	5.0Ah
	Putere nominală: <i>Nominal energy</i>	72Wh
	Sistem chimic: <i>Chemical system</i>	Oxid de mangan-litiu/Grafit <i>Lithium manganese oxide / Graphite</i>
	Reîncărcabilă: <i>Rechargeable</i>	Da <i>Yes</i>

Producător: <i>Manufacturer</i>	Numele și adresa: <i>Name and address</i>	REMS GmbH & Co KG Stuttgarter Straße 83 D-71332 Waiblingen
	Telefon/ <i>phone</i> :	+49 (0) 7151/ 1707-0
	Telefax/ <i>fax</i> :	+49 (0) 7151/ 1707-110
	E-mail/ <i>e-mail</i> :	info@rems.de

Tel: +49 (0)7151-1707-0

Fax: +49 (0)7151-1707-110

Amtsgericht Stuttgart HRA 728253

Persönlich haftender Gesellschafter: Föll GmbH

Amtsgericht Stuttgart HRB260321

E-Mail: info@rems.de

Internet: www.rems.de

Geschäftsführer:

Dr.-Ing. Christoph Föll-Laubengeiger

Dr.-Ing. Rudolf Wagner

2. Identificarea pericolelor:

Possible Hazards:

- Clasificare:** Ceastă baterie litiu-ion reîncărcabilă are o putere nominală >100 Wh. În cadrul a diverse regulamente de transport există prevederi speciale.
- Classification:** *This lithium-ion battery has a nominal energy of > 100Wh, which is why it is subject to certain special provisions under the hazardous substances law.*
- Pericole:** Bateriile litiu-ion pot prezenta un risc de aprindere sau explozie sau ardere chimică la manipularea greșită. Nu scurtcircuitați, nu perforați, nu incinerați, nu striviți, nu scufundați, nu descărcați forțat și nu expuneți produsul la temperaturi peste intervalul de temperatură de funcționare declarat al produsului. Citiți cu atenție instrucțiunile. În condiții normale de utilizare, substanțele chimice și metalele sunt conținute într-un recipient etanș și nu sunt expuse la mediul extern. Riscul de expunere apare numai în caz de abuz (mecanic, termic, electric) care duce la activarea supapelor de siguranță și/sau crăparea carcasei bateriei. Pot urma scurgeri de electrolit, reacția materialelor electrodului cu umezeala/apa sau aerisirea/aprinderea/explozia bateriei, în funcție de situație.
- Hazards:** *When handled improperly, lithium-ion batteries may explode, or cause fire or chemical burns. Batteries must not be short-circuited, punctured, thrown into fire, crushed, immersed in water, forcibly discharged or exposed to temperatures exceeding the product's specified operating range. Please read the operating instructions thoroughly. The escape of and contact with any hazardous and toxic substances is not possible under normal conditions of use. A risk of exposure only exists in case of improper (mechanical, thermal, electrical) use which leads to the activation of safety valves and/or the rupture of the battery housing. Depending on the surrounding circumstances, the following might occur: electrolyte leakage, reaction of the electrode materials with moisture/water or battery venting/fire/explosion.*
- Toxicitate:** În cazul aprinderii bateriei, vaporii pot irita ochii, pielea și tractul respirator.
- Toxicity:** *If a battery burns, smoke or vapors are generated. These may cause eye, skin and respiratory tract irritations.*

Tel: +49 (0)7151-1707-0

Fax: +49 (0)7151-1707-110

Amtsgericht Stuttgart HRA 728253

Persönlich haftender Gesellschafter: Föll GmbH

Amtsgericht Stuttgart HRB260321

E-Mail: info@rems.de

Internet: www.rems.de

Geschäftsführer:

Dr.-Ing. Christoph Föll-Laubengeiger

Dr.-Ing. Rudolf Wagner

3. Compoziția și informațiile privind ingredientele

Composition and Information About the Individual Components

Bateria conține următoarele.

The following components are contained in the sealed cell.

Secțiune	Numele materialului	Intervalul de concentrație (wt %)	Număr CAS
Electrod pozitiv	Oxidat metalic de tranziție la litiu Li[M]m[O]n	20~60	12190-79-3 12057-17-9 182442-95-1
Baza electrodului pozitiv	Aluminiu	1~10	7429-90-5
Electrod negativ	Carbon	10~30	7429-90-5
Baza electrodului negativ	Cupru	1~15	7440-44-0
Electrolit	Electrolitul organic implică, în principal, ester carbonat	5~25	Confidențial
Carcasa exterioară	Aluminiu, fier, plastic laminat cu aluminiu	1~30	7429-90-5; 7439-89-6

Component	Material name	Concentration range (wt %)	CAS number
Positive electrode	Lithium transition metal oxidate Li[M]m[O]n	20~60	12190-79-3 12057-17-9 182442-95-1
Positive electrode's base	Aluminum	1~10	7429-90-5
Negative electrode	Carbon	10~30	7429-90-5
Negative electrode's base	Copper	1~15	7440-44-0
Electrolyte	Organic electrolyte principally involves ester carbonate	5~25	Confidential
Outer case	Aluminum, iron, aluminum laminated plastic	1~30	7429-90-5; 7439-89-6

Tel: +49 (0)7151-1707-0

Fax: +49 (0)7151-1707-110

Amtsgericht Stuttgart HRA 728253

Persönlich haftender Gesellschafter: Föll GmbH

Amtsgericht Stuttgart HRB260321

E-Mail: info@rems.de

Internet: www.rems.de

Geschäftsführer:

Dr.-Ing. Christoph Föll-Laubengeiger

Dr.-Ing. Rudolf Wagner

4. Măsurile de prim ajutor

First Aid Measures

Substanțele chimice sunt conținute în recipiente etanșe. În condiții normale de utilizare, riscul de expunere apare numai dacă bateria este supusă unui abuz mecanic.

The chemicals are contained in a sealed housing so that they cannot escape during normal use. Leakage may only be caused as a result of mechanical damage to the housing.

Dacă survine scurgerea de substanțe chimice, urmați aceste instrucțiuni:

If chemicals do leak, the following must be observed

Inhalarea: Conținutul unei baterii deschise poate provoca iritarea căilor respiratorii. Asigurați aer proaspăt și apelați un medic.

Inhalation: *Escaping gases may cause respiratory tract irritation. Immediately ventilate or leave the room to get into fresh air. In more serious cases, call a doctor immediately.*

Contactul cu pielea: Conținutul unei baterii deschise poate provoca iritarea cutanată. Spălați pielea cu săpun și apă.

Skin contact: *Skin irritations may occur. Thoroughly wash the skin with soap and water.*

Contactul cu ochii: Conținutul unei baterii deschise poate provoca iritarea oculară. Spălați imediat ochii din plin cu apă timp de 15 minute și solicitați atenție medicală.

Eye contact: *Eye irritations may occur. Immediately and thoroughly rinse the eyes with water for 15 minutes then seek medical assistance.*

5. Măsuri anti-incendiu

Fire Fighting Measures

În caz de incendiu: Utilizați numai extincătoare cu substanțe chimice.

In case of fire: *Only use Class D (dry powder) fire extinguishers.*

Atenție: Înainte de a începe să stingeți incendiul, asigurați-vă că sunteți în sens opus direcției de vânt. Veți evita astfel inhalarea vaporilor toxici.

Caution: *Before you start extinguishing the fire, be sure to go to the side of the fire from which the wind is coming. In this way, you will not inhale any toxic vapours.*

Tel: +49 (0)7151-1707-0

Fax: +49 (0)7151-1707-110

Amtsgericht Stuttgart HRA 728253

Persönlich haftender Gesellschafter: Föll GmbH

Amtsgericht Stuttgart HRB260321

E-Mail: info@rems.de

Internet: www.rems.de

Geschäftsführer:

Dr.-Ing. Christoph Föll-Laubengeiger

Dr.-Ing. Rudolf Wagner

6. Măsurile de eliberare accidentală

Measures to Be Implemented in Case of Accidental Leakage

Ștergeți fluidul cu electrolit scurs cu o lavetă absorbantă.

Leaked electrolyte fluid should be wiped up with an absorbent cloth.

Dacă există o cantitate mare de electrolit, trebuie să purtați:

Personal protective equipment should be worn in case of larger leakages:

- ↪ **echipament de protecție**
protective clothing
- ↪ **mască de gaze pentru gaze organice**
gas mask for protection against organic gases
- ↪ **ochelari de protecție de siguranță**
safety goggles
- ↪ **mănuși de protecție**
protective gloves

7. Curățare și depozitare

Handling and Storage

- Manipulare:** Nu deschideți bateria. A nu se strivi, demonta, scăpa sau vinde.
Handling: *Neither open, crush nor disassemble the battery, nor let it drop from a great height nor solder anything onto it.*
- Încărcare:** A se încărca în limitele de temperatură de +0 °C până la +45 °C
A se încărca numai cu încărcătorul specificat conceput pentru această baterie.
Charging: *The charging temperature must be between +32 °F and +113 °F.*
Only use the charger designated for this battery.
- Descărcare:** A se descărca în limitele de temperatură de -20 °C până la +60 °C.
Discharging: *The battery may only be discharged at temperatures from -4 °F to +140 °F.*
- Atenție:** Manipularea greșită poate cauza aprinderea sau explozia!
Caution: *Improper handling may cause fire or explosion!*
- Depozitare:** Temperatură: între -20°C și +40°C, pentru mai puțin de 3 luni
Storage: *Temperature: -4 °F to +104°F, for less than 3 months*
Interval de umiditate: de la 0% la 80%
Humidity range: 0 % to 80 %
Zonă bine ventilată / Store in a well-ventilated place.
Scurtcircuitarea poate produce arderea aleatorie. / Short circuits may cause fires.
A nu se depozita împreună cu obiecte metalice. / Do not store along with other metal objects.

Tel: +49 (0)7151-1707-0

Fax: +49 (0)7151-1707-110

Amtsgericht Stuttgart HRA 728253

Persönlich haftender Gesellschafter: Föll GmbH

Amtsgericht Stuttgart HRB260321

E-Mail: info@rems.de

Internet: www.rems.de

Geschäftsführer:

Dr.-Ing. Christoph Föll-Laubengeiger

Dr.-Ing. Rudolf Wagner

8. Controalele expunerii și protecția personală

Monitoring of the Stored Goods and Personal Protective Equipment

Trebuie luate în considerare recomandările de la punctul 7. Monitorizați ca temperatura de depozitare să se situeze în permanență în limite. De asemenea, asigurați o bună ventilare și interval de umiditate în cadrul limitelor. Pentru utilizarea normală, nu este necesar echipamentul de protecție.

Observe the information stated in Section 7. Continuously monitor the storage temperature so as to ensure that it is within the specified limits. Apart from that, it is required to ensure good ventilation and that the humidity does not exceed the specified limits. No protective equipment is required during normal handling.

9. Proprietăți fizice și chimice

Physical and Chemical Properties

Aspect:	8 celule într-o carcasă
<i>Appearance:</i>	<i>Housing with 8 cells</i>
Greutate:	520 g
<i>Weight:</i>	<i>520 g</i>
Proprietăți chimice:	a se vedea Punctul 3
<i>Chemical properties:</i>	<i>see Section 3</i>

10. Stabilitate și reactivitate

Stability and Reactivity

Pentru o perioadă de depozitare care depășește 12 luni, capacitatea va fi redusă, iar valabilitatea bateriei va fi mai scurtă. Dacă totuși survine scurgerea de electrolit, carcasa de plastic se poate deteriora.

Storage periods of more than 12 months will decrease the battery's capacity and expected lifespan. Electrolyte leakages may damage the housing on the inside.

11. Informații privind toxicologia

Toxicological Information

În condiții normale de utilizare nu vor exista scurgeri și, prin urmare, nu va exista contactul cu ingredientele toxice ale bateriei.

The escape of and contact with any hazardous and toxic substances is not possible under normal conditions of use.

Tel: +49 (0)7151-1707-0

Fax: +49 (0)7151-1707-110

Amtsgericht Stuttgart HRA 728253

Persönlich haftender Gesellschafter: Föll GmbH

Amtsgericht Stuttgart HRB260321

E-Mail: info@rems.de

Internet: www.rems.de

Geschäftsführer:

Dr.-Ing. Christoph Föll-Laubengeiger

Dr.-Ing. Rudolf Wagner

12. Informații ecologice

Environment-Related Information

În situații de utilizare normală a bateriei nu survine poluarea ecologică. Cu toate acestea, bateria conține substanțe chimice care pot pune în pericol mediul înconjurător. La eliminarea bateriilor utilizate, respectați întotdeauna instrucțiunile conform descrierii de la punctul 13.

Provided that the battery is handled properly, environmental pollution does not occur. After use, however, the battery must be disposed of separately as it contains hazardous chemicals. See Section 13.

13. Considerente privind eliminarea

Disposal Instructions

Bateria este un reziduu periculos.

Nu este permisă eliminarea pe calea reziduurilor menajere.

Dacă bateria nu se poate utiliza, eliminați conform regulamentelor de reciclare care se aplică.

Batteries are classified as hazardous waste.

The battery may only be disposed of by returning it to an authorized collection point.

It is prohibited to dispose of the battery with normal household waste.

14. Informații privind transportul

Transportation information

Explicație generală

General explanation

Regulamentele de limitare se aplică pentru expedierea acestor bunuri pe calea transportului aerian, rutier, feroviar sau maritim. Găsiți referințele la aceste regulamente menționate mai jos. Întrucât legislația face obiectul unor modificări frecvente, transportatorul se va asigura că bunurile sunt transportate conform legislației valide și aplicabile în momentul expedierii. Dacă este necesar, vă rugăm să contactați producătorul pentru asistență în aceste aspecte.

Restrictive regulations are applicable to the product's transport by air, road, rail or sea. Below you will find references to these regulations. As these laws are subject to frequent changes, the transport company shall ensure that the products are transported according to the regulations applicable at the time of shipment. Please contact the manufacturer of the products if you need any assistance in this matter.

Transportul bateriei conform Directivei ONU 3480/3481 (1).

Se aplică reglementările pentru bateriile cu o capacitate nominală ≤ 100 Wh.

Transportation of the battery according to Directive UN 3480/3481 (1).

The regulations for batteries with nominal energy ≤ 100 Wh have to be used.

Bateria **trebuie** protejată împotriva scurtcircuitului.

The battery **must** be protected against short circuits.

Tel: +49 (0)7151-1707-0
Fax: +49 (0)7151-1707-110
Amtsgericht Stuttgart HRA 728253
Persönlich haftender Gesellschafter: Föll GmbH
Amtsgericht Stuttgart HRB260321

E-Mail: info@rems.de
Internet: www.rems.de
Geschäftsführer:
Dr.-Ing. Christoph Föll-Laubengeiger
Dr.-Ing. Rudolf Wagner

Regulamentul de transport depinde de regiune și modul de transport.

The transport regulations depend on the country-specific provisions and on the type of transport.

Fiecare pachet trebuie etichetat cu următoarele etichete și trebuie alăturată o scrisoare de însoțire, după cum este indicat mai jos:

Each package must be marked with the following labels. Furthermore, it is required to enclose an accompanying note as stated below

Etichete autocolante pentru transportul rutier/feroviar și a se vedea

Labelling for transport by road/rail and sea



+ etichetă autocolantă cu expeditorul și destinatarul

+ *Label stating the consignor and consignee*

ADR/RID/IMDG-Code: Bateria îndeplinește cerințele de la Dispoziției Speciale 188.
The battery meets the requirements of special provision 188.

Etichetă autocolantă pentru expediere / transport aerian CAO

Shipping label/cargo aircraft only (CAO)



+ etichetă autocolantă cu expeditorul și destinatarul

+ *Label stating the consignor and consignee*

Scrisoare de însoțire / *Accompanying note:* UN 3480 LITHIUM-ION BATTERIES, 9, -, (E)

Dispoziției Speciale 188
special provision 188

ICAO-TI/IATA-DGR: Dispoziții privind ambalarea 965, partea II sau partea IB
Packing instruction 965, Part II or Part IB

Tel: +49 (0)7151-1707-0

Fax: +49 (0)7151-1707-110

Amtsgericht Stuttgart HRA 728253

Persönlich haftender Gesellschafter: Föll GmbH

Amtsgericht Stuttgart HRB260321

E-Mail: info@rems.de

Internet: www.rems.de

Geschäftsführer:

Dr.-Ing. Christoph Föll-Laubengeiger

Dr.-Ing. Rudolf Wagner

15. Dispoziții și regulamente

Provisions and Regulations

Referințe la dispozițiile referitoare la transportul de mărfuri periculoase:

References to provisions concerning the transport of hazardous goods

Legea privind transportul mărfurilor periculoase (GGBefG)

Transportation of Dangerous Goods Act (GGBefG)

Ordonanța privind transportul mărfurilor periculoase pe căi rutiere, feroviare și avigabile interioare (GGVSEB)

Ordinance on the Transport of Dangerous Goods by Road, Rail and Inland Waterways (GGVSEB)

Ordonanța privind transportul mărfurilor periculoase pe mare (GGVSee)

Ordinance on the Transport of Dangerous Goods by Sea (GGVSee)

Legea privind traficul aerian (LuftVG), Ordinul de autorizare a traficului aerian (LuftVZO)

Air Traffic Act (LuftVG), Air Traffic Licensing Order (LuftVZO)

Acordul european privind transportul rutier internațional al mărfurilor periculoase (ADR)

European Agreement concerning the International Carriage of Dangerous Goods by Road (ADR)

Regulamentul privind transportul feroviar internațional al mărfurilor periculoase (RID)

Regulation concerning the International Carriage of Dangerous Goods by Rail (RID)

Acordul european privind transportul internațional al mărfurilor periculoase pe căi navigabile interioare (ADN)

European Agreement concerning the International Carriage of Dangerous Goods by Inland Navigation (ADN)

Codul maritim internațional pentru mărfuri periculoase (Codul IMDG)

International Maritime Dangerous Goods Code (IMDG Code)

Organizația Internațională a Aviației Civile/ International Civil Aviation Organization-

Instrucțiuni tehnice pentru transportul în siguranță al mărfurilor periculoase pe calea aerului (ICAO-TI)

Technical Instructions for the Safe Transport of Dangerous Goods by Air (ICAO-TI)

Asociația Internațională de Transport Aerian / International Air Transport Association-

Reglementări privind mărfurile periculoase (IATA-DGR)

Dangerous Goods Regulations (IATA-DGR)

Tel: +49 (0)7151-1707-0

Fax: +49 (0)7151-1707-110

Amtsgericht Stuttgart HRA 728253

Persönlich haftender Gesellschafter: Föll GmbH

Amtsgericht Stuttgart HRB260321

E-Mail: info@rems.de

Internet: www.rems.de

Geschäftsführer:

Dr.-Ing. Christoph Föll-Laubengeiger

Dr.-Ing. Rudolf Wagner

16. Stare de încărcare în conformitate cu reglementările IATA privind mărfurile periculoase de la 1 aprilie 2016

State of Charge in Accordance with the Changes to the IATA Dangerous Goods Regulations Effective from 1 April 2016

În conformitate cu modificarea reglementărilor IATA privind mărfurile periculoase, care intră în vigoare la 1 aprilie 2016, REMS GmbH & Co KG confirmă faptul că bateriile litiu-ion (ONU 3480) produse începând cu 1 aprilie 2016 sunt livrate pentru transport având o stare de încărcare (SoC) de cel mult 30% din capacitatea proiectată.

In accordance with the changes to the IATA Dangerous Goods Regulations, which entered into force on 1 April 2016, REMS GmbH & Co KG confirms that all lithium-ion batteries (UN 3480) manufactured from 1 April 2016 will be handed over for transportation with their state of charge (SoC) not exceeding 30% of their design capacity.

17. Alte informații

Other Information

Aceste informații au fost compilate cu acuratețe, conform cunoștințelor și convingerilor noastre. Cu toate acestea, REMS GmbH & Co KG exclude orice garanție pentru acuratețea, fiabilitatea sau caracterul complet al informațiilor conținute. Utilizatorului îi revine responsabilitatea să verifice caracterul adecvat, complet și relevant al acestor informații pentru uzul său.

This information has been meticulously compiled to the best of our knowledge and belief. REMS GmbH & Co KG excludes any warranty whatsoever for the accuracy, reliability or completeness of the information provided herein! It is the user's responsibility to check the information's suitability, completeness and timeliness with regard to the relevant purpose of use.

Tel: +49 (0)7151-1707-0

Fax: +49 (0)7151-1707-110

Amtsgericht Stuttgart HRA 728253

Persönlich haftender Gesellschafter: Föll GmbH

Amtsgericht Stuttgart HRB260321

E-Mail: info@rems.de

Internet: www.rems.de

Geschäftsführer:

Dr.-Ing. Christoph Föll-Laubengeiger

Dr.-Ing. Rudolf Wagner

ПАСПОРТ БЕЗОПАСНОСТИ ПРОДУКТА MATERIAL SAFETY DATA SHEET

Литий-ионный оксид-марганцевый аккумулятор
Lithium ion manganese oxide battery

Артикул №: 571555 R14H / Item no.: 571555 R14H

В соответствии с Директивой (ЕЭС) № 1907/2006 (REACH) требование представления паспорта безопасности применяется только к химическим веществам и составам. Тем самым, требования данной директивы не применяются к аккумуляторам.

According to Regulation (EC) No. 1907/2006 (REACH), a safety data sheet must be provided solely for substances and preparations. Batteries are not affected by the requirements of this Regulation.

1. Идентификация продукции и сведения о производителе

Product Designation and Name of the Manufacturer

Идентификация: <i>Identification</i>	Категория продукции: <i>Product category</i>	Литий-ионный аккумулятор <i>Lithium-ion battery</i>
	Наименование модели: <i>Model name</i>	4S2P
	Номинальное напряжение: <i>Nominal voltage</i>	14.4V
	Номинальная ёмкость: <i>Nominal capacity</i>	5.0Ah
	Номинальная энергия: <i>Nominal energy</i>	72Wh
	Химическая система: <i>Chemical system</i>	Литий-Оксид марганца/Графит <i>Lithium manganese oxide / Graphite</i>
	Подзаряжаемый: <i>Rechargeable</i>	Да <i>Yes</i>

Производитель: <i>Manufacturer</i>	Наименование и адрес: <i>Name and address</i>	REMS GmbH & Co KG Stuttgarter Straße 83 D-71332 Waiblingen
	Телефон/ <i>phone</i> :	+49 (0) 7151/ 1707-0
	Телефакс / <i>fax</i> :	+49 (0) 7151/ 1707-110
	E-mail / <i>e-mail</i> :	info@rems.de

Tel: +49 (0)7151-1707-0
Fax: +49 (0)7151-1707-110
Amtsgericht Stuttgart HRA 728253
Persönlich haftender Gesellschafter: Föll GmbH
Amtsgericht Stuttgart HRB260321

E-Mail: info@rems.de
Internet: www.rems.de
Geschäftsführer:
Dr.-Ing. Christoph Föll-Laubengeiger
Dr.-Ing. Rudolf Wagner

2. Идентификация опасности (ей):

Possible Hazards:

- Классификация:** Литий-ионный аккумулятор обладает номинальной энергией > 100 Вт.ч и, тем самым, подпадает под действие определенных специальных положений, применяемых в рамках законодательства о транспортировке опасных грузов.
- Classification:** *This lithium-ion battery has a nominal energy of > 100Wh, which is why it is subject to certain special provisions under the hazardous substances law.*
- Опасности:** Литий-ионные аккумуляторы могут воспламеняться, взрываться или вызывать химические ожоги в случае ненадлежащего обращения с ними. Ни при каких обстоятельствах не допускать возникновения коротких замыканий, не прокалывать, не подвергать воздействию открытого огня, не производить сдавливания, не погружать в жидкость, не производить их принудительной разрядки или подвергать воздействию температур, выходящих за рамки определенного диапазона рабочих температур изделия. Внимательно ознакомьтесь с руководством по эксплуатации. В нормальных условиях изделие не несет угрозы утечки опасных химических веществ и, тем самым, опасности контакта с токсичными веществами. Опасность неблагоприятного воздействия на человека имеет место только в случае ненадлежащего обращения (механические, термические, электрические воздействия), которое может привести к активации защитных клапанов и/или разрушению корпуса. Результатом этого, в зависимости от сопутствующих обстоятельств, может стать утечка электролита, контакт материала электродов с влагой/водой или разгерметизация/ воспламенение/ взрыв.
- Hazards:** *When handled improperly, lithium-ion batteries may explode, or cause fire or chemical burns. Batteries must not be short-circuited, punctured, thrown into fire, crushed, immersed in water, forcibly discharged or exposed to temperatures exceeding the product's specified operating range. Please read the operating instructions thoroughly.*
The escape of and contact with any hazardous and toxic substances is not possible under normal conditions of use. A risk of exposure only exists in case of improper (mechanical, thermal, electrical) use which leads to the activation of safety valves and/or the rupture of the battery housing. Depending on the surrounding circumstances, the following might occur: electrolyte leakage, reaction of the electrode materials with moisture/water or battery venting/fire/explosion.
- Токсичность:** Горение аккумулятора может стать причиной раздражения слизистой оболочки глаз, кожных покровов и дыхательных путей.
- Toxicity:** *If a battery burns, smoke or vapors are generated. These may cause eye, skin and respiratory tract irritations.*

Tel: +49 (0)7151-1707-0

Fax: +49 (0)7151-1707-110

Amtsgericht Stuttgart HRA 728253

Persönlich haftender Gesellschafter: Föll GmbH

Amtsgericht Stuttgart HRB260321

E-Mail: info@rems.de

Internet: www.rems.de

Geschäftsführer:

Dr.-Ing. Christoph Föll-Laubengeiger

Dr.-Ing. Rudolf Wagner

3. Химический состав и сведения о компонентах

Composition and Information About the Individual Components

Аккумулятор содержит следующие компоненты, заключенные в герметично закрытую ячейку.

The following components are contained in the sealed cell.

Элемент	Наименование материала	Диапазон концентраций (весовой процент %)	CAS-номер
Положительный электрод	Литий-окись переходного металла Li[M]m[O]n	20~60	12190-79-3 12057-17-9 182442-95-1
Основа положительного электрода	алюминий	1~10	7429-90-5
Отрицательный электрод	углерод	10~30	7429-90-5
Основа отрицательного электрода	медь	1~15	7440-44-0
Электролит	Органический электролит состоящий в основном изкарбоната эфира	5~25	Коммерческая тайна
Наружная оболочка	Алюминий, железо, пластик, ламинированный алюминием	1~30	7429-90-5; 7439-89-6

Component	Material name	Concentration range (wt %)	CAS number
Positive electrode	Lithium transition metal oxidate Li[M]m[O]n	20~60	12190-79-3 12057-17-9 182442-95-1
Positive electrode's base	Aluminum	1~10	7429-90-5
Negative electrode	Carbon	10~30	7429-90-5
Negative electrode's base	Copper	1~15	7440-44-0
Electrolyte	Organic electrolyte principally involves ester carbonate	5~25	Confidential
Outer case	Aluminum, iron, aluminum laminated plastic	1~30	7429-90-5; 7439-89-6

Tel: +49 (0)7151-1707-0

Fax: +49 (0)7151-1707-110

Amtsgericht Stuttgart HRA 728253

Persönlich haftender Gesellschafter: Föll GmbH

Amtsgericht Stuttgart HRB260321

E-Mail: info@rems.de

Internet: www.rems.de

Geschäftsführer:

Dr.-Ing. Christoph Föll-Laubengeiger

Dr.-Ing. Rudolf Wagner

4. Меры первой помощи

First Aid Measures

Химические вещества, указанные под Пунктом 3, находятся в герметично укупоренном корпусе, который обеспечивает невозможность их произвольного высвобождения/утечки при условии надлежащего обращения с изделием. Опасность их высвобождения/утечки имеет место только в случае механического повреждения корпуса.

The chemicals stated in Section 3 are contained in a sealed housing so that they cannot escape during normal use. Leakage may only be caused as a result of mechanical damage to the housing.

В случае высвобождения/утечки следует учитывать следующее:

If chemicals do leak, the following must be observed

Вдыхание:	Выделяющиеся газы могут приводить к раздражениям дыхательных путей. Незамедлительно проветрить помещение или выйти на свежий воздух; в тяжелых случаях обратиться к врачу.
<i>Inhalation:</i>	<i>Escaping gases may cause respiratory tract irritation. Immediately ventilate or leave the room to get into fresh air. In more serious cases, call a doctor immediately.</i>
Контакт с кожными покровами:	Опасность возникновения раздражений на кожных покровах. Обильно промыть кожу водой и мылом.
<i>Skin contact:</i>	<i>Skin irritations may occur. Thoroughly wash the skin with soap and water.</i>
Контакт со слизистой оболочкой глаз:	Опасность возникновения раздражений слизистой оболочки глаз. Незамедлительно промыть глаза; промывание производить в течение 15 минут, после чего обратиться к врачу.
<i>Eye contact:</i>	<i>Eye irritations may occur. Immediately and thoroughly rinse the eyes with water for 15 minutes then seek medical assistance.</i>

5. Меры по пожаротушению

Fire Fighting Measures

В случае пожара:	Используйте только огнетушители класса пожаротушения D (порошковые).
<i>In case of fire:</i>	<i>Only use Class D (dry powder) fire extinguishers.</i>
Внимание:	Перед тем, как приступить к тушению пожара, встаньте с наветренной стороны от возгорания. Таким образом, исключается вдыхание токсичных паров.
<i>Caution:</i>	<i>Before you start extinguishing the fire, be sure to go to the side of the fire from which the wind is coming. In this way, you will not inhale any toxic vapours.</i>

Tel: +49 (0)7151-1707-0
Fax: +49 (0)7151-1707-110
Amtsgericht Stuttgart HRA 728253
Persönlich haftender Gesellschafter: Föll GmbH
Amtsgericht Stuttgart HRB260321

E-Mail: info@rems.de
Internet: www.rems.de
Geschäftsführer:
Dr.-Ing. Christoph Föll-Laubengeiger
Dr.-Ing. Rudolf Wagner

6. Меры по ликвидации аварийных выбросов/разливов

Measures to Be Implemented in Case of Accidental Leakage

Уборка вытекшей электролитической жидкости должна производиться с использованием абсорбирующей ветоши.

Leaked electrolyte fluid should be wiped up with an absorbent cloth.

В случае значительных объемов утечки, необходимо использовать СИЗ:

Personal protective equipment should be worn in case of larger leakages:

- ☞ **Защитная одежда**
protective clothing
- ☞ **Противогаз для защиты от органических газов**
gas mask for protection against organic gases
- ☞ **Защитные очки**
safety goggles
- ☞ **Защитные перчатки**
protective gloves

7. Правила обращения и хранения

Handling and Storage

Обращение: Аккумулятор не вскрывать, не подвергать сдавливанию, не разбирать, не допускать падения с высоты, не производить пайку.

Handling: Neither open, crush nor disassemble the battery, nor let it drop from a great height nor solder anything onto it.

Зарядка: Зарядка аккумулятора должна производиться в диапазоне температур от 0 °C до +45 °C. Зарядка должна производиться с использованием соответствующего зарядного устройства.

*Charging: The charging temperature must be between +32 °F and +113 °F.
Only use the charger designated for this battery.*

Разрядка: Зарядка аккумулятора должна производиться в диапазоне температур от -20 °C до +60 °C.

Discharging: The battery may only be discharged at temperatures from -4 °F to +140 °F.

Внимание: Некорректное обращение может привести к взрыву или возгоранию!

Caution: Improper handling may cause fire or explosion!

Хранение: Температура: от -20°C до +40°C в течение не более 3 месяцев

Storage: Temperature: -4 °F to +104°F, for less than 3 months

Влажность воздуха: 0 % до 80 %

Humidity range: 0 % to 80 %

Хранение должно производиться в хорошо проветриваемом помещении. / *Store in a well-ventilated place.*

Короткое замыкание может стать причиной возгорания. / *Short circuits may cause fires.*

Воспрещается хранить аккумуляторы вместе с металлическими предметами. / *Do not store along with other metal objects.*

Tel: +49 (0)7151-1707-0

Fax: +49 (0)7151-1707-110

Amtsgericht Stuttgart HRA 728253

Persönlich haftender Gesellschafter: Föll GmbH

Amtsgericht Stuttgart HRB260321

E-Mail: info@rems.de

Internet: www.rems.de

Geschäftsführer:

Dr.-Ing. Christoph Föll-Laubengeiger

Dr.-Ing. Rudolf Wagner

8. Контроль хранения продукции и средства индивидуальной защиты

Monitoring of the Stored Goods and Personal Protective Equipment

Соблюдать указания, приведенные в Разделе 7. Обеспечить постоянный контроль за соблюдением установленного температурного режима хранения. Также обеспечить хорошую проветриваемость помещения и поддержание влажности воздуха в пределах установленного диапазона. Обращение с аккумуляторами в штатном режиме не требует использования средств индивидуальной защиты.

Observe the information stated in Section 7. Continuously monitor the storage temperature so as to ensure that it is within the specified limits. Apart from that, it is required to ensure good ventilation and that the humidity does not exceed the specified limits. No protective equipment is required during normal handling.

9. Физические и химические свойства

Physical and Chemical Properties

Внешний вид: <i>Appearance:</i>	8 ячеек в корпусе <i>Housing with 8 cells</i>
Вес: <i>Weight:</i>	520 гр <i>520 g</i>
Химические свойства: <i>Chemical properties:</i>	см. Раздел 3 <i>see Section 3</i>

10. Стабильность и химическая активность

Stability and Reactivity

При хранении аккумулятора в течение 12 месяцев происходит уменьшение ёмкости и ожидаемого ресурса аккумулятора. Корпус аккумулятора может быть поврежден изнутри в результате утечки электролита.

Storage periods of more than 12 months will decrease the battery's capacity and expected lifespan. Electrolyte leakages may damage the housing on the inside.

11. Токсичность

Toxicological Information

При нормальном обращении изделие не несет угрозы утечки опасных химических веществ и, тем самым, опасности контакта с токсичными веществами.

The escape of and contact with any hazardous and toxic substances is not possible under normal conditions of use.

Tel: +49 (0)7151-1707-0
Fax: +49 (0)7151-1707-110
Amtsgericht Stuttgart HRA 728253
Persönlich haftender Gesellschafter: Föll GmbH
Amtsgericht Stuttgart HRB260321

E-Mail: info@rems.de
Internet: www.rems.de
Geschäftsführer:
Dr.-Ing. Christoph Föll-Laubengeiger
Dr.-Ing. Rudolf Wagner

12. Воздействие на окружающую среду

Environment-Related Information

При надлежащем обращении аккумуляторы не оказывают вредоносного воздействия на окружающую среду. Однако, их утилизация должна производиться в соответствии с положениями по утилизации специальных отходов, т.к. они содержат опасные химические вещества. См. Раздел 13.
Provided that the battery is handled properly, environmental pollution does not occur. After use, however, the battery must be disposed of separately as it contains hazardous chemicals. See Section 13.

13. Утилизация и захоронение отходов

Disposal Instructions

Аккумулятор относится к спецотходам.

Утилизация аккумуляторов должна производиться исключительно силами авторизованных точек приема использованных элементов. Утилизация аккумуляторов ни при каких обстоятельствах не должна осуществляться вместе с бытовыми отходами.

Batteries are classified as hazardous waste.

The battery may only be disposed of by returning it to an authorized collection point. It is prohibited to dispose of the battery with normal household waste.

14. Правила транспортирования

Transportation information

Общие указания
General explanation

Ограничительные положения в отношении транспортировки настоящей продукции воздушным, автомобильным, железнодорожным или морским транспортом являются определяющими. Ссылки на такие положения приведены ниже. С учетом постоянного изменения законодательных норм, перевозчик обязан убедиться в том, что транспортировка продукции осуществляется в соответствии с директивами, действующими и применяемыми на момент осуществления транспортировки. В случае необходимости, обратитесь к производителю продукции за получением помощи по данному вопросу.
Restrictive regulations are applicable to the product's transport by air, road, rail or sea. Below you will find references to these regulations. As these laws are subject to frequent changes, the transport company shall ensure that the products are transported according to the regulations applicable at the time of shipment. Please contact the manufacturer of the products if you need any assistance in this matter.

Транспортировка аккумуляторных батарей согласно директиве ООН 3480/3481 (1).

Должны применяться правила для аккумуляторов с номинальной емкостью ≤ 100 Втч.

Transportation of the battery according to Directive UN 3480/3481 (1).

The regulations for batteries with nominal energy ≤ 100 Wh have to be used.

Аккумулятор **должен** быть защищен от короткого замыкания.

*The battery **must** be protected against short circuits.*

Tel: +49 (0)7151-1707-0
Fax: +49 (0)7151-1707-110
Amtsgericht Stuttgart HRA 728253
Persönlich haftender Gesellschafter: Föll GmbH
Amtsgericht Stuttgart HRB260321

E-Mail: info@rems.de
Internet: www.rems.de
Geschäftsführer:
Dr.-Ing. Christoph Föll-Laubengeiger
Dr.-Ing. Rudolf Wagner

Предписания, применяемые к транспортировке, зависят от страны и режима транспортировки.
The transport regulations depend on the country-specific provisions and on the type of transport.

Каждое грузовое место должно быть помечено следующими наклейками, и должно прилагаться сопроводительное письмо, как указано ниже:

Each package must be marked with the following labels. Furthermore, it is required to enclose an accompanying note as stated below

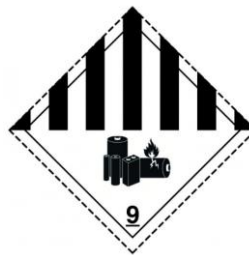
Наклейка для перевозки автомобильным/железнодорожным транспортом и См
Labelling for transport by road/rail and sea



+ Наклейка с указанием отправителя и получателя
+ Label stating the consignor and consignee

ADR/RID/IMDG-Code: Аккумулятор соответствует требованиям Специального Постановления 188.
The battery meets the requirements of special provision 188.

Наклейка для транспортировки/воздушной перевозки только грузовым воздушным судном
Shipping label/cargo aircraft only (CAO)



+ Наклейка с указанием отправителя и получателя
+ Label stating the consignor and consignee

Сопроводительное письмо / *Accompanying note:* UN 3480 LITHIUM-ION BATTERIES, 9, -, (E)

Специального Постановления 188
special provision 188

ICAO-TI/IATA-DGR: Инструкции по упаковке 965, часть II или часть IB
Packing instruction 965, Part II or Part IB

Tel: +49 (0)7151-1707-0

Fax: +49 (0)7151-1707-110

Amtsgericht Stuttgart HRA 728253

Persönlich haftender Gesellschafter: Föll GmbH

Amtsgericht Stuttgart HRB260321

E-Mail: info@rems.de

Internet: www.rems.de

Geschäftsführer:

Dr.-Ing. Christoph Föll-Laubengeiger

Dr.-Ing. Rudolf Wagner

15. Положения закона и регламенты

Provisions and Regulations

Информация о положениях, регулирующих перевозки опасных грузов:

References to provisions concerning the transport of hazardous goods:

Закон о перевозке опасных грузов (GGBefG)

Transportation of Dangerous Goods Act (GGBefG)

Распоряжение о перевозке опасных грузов автомобильным, железнодорожным и судоходным путем (GGVSEB)

Ordinance on the Transport of Dangerous Goods by Road, Rail and Inland Waterways (GGVSEB)

Правила перевозки опасных грузов морским транспортом (GGVSee)

Ordinance on the Transport of Dangerous Goods by Sea (GGVSee)

Закон о воздушных перевозках (LuftVG), Правила допуска к воздушным перевозкам (LuftVZO)

Air Traffic Act (LuftVG), Air Traffic Licensing Order (LuftVZO)

Европейское соглашение о международной дорожной перевозке опасных грузов (ADR)

European Agreement concerning the International Carriage of Dangerous Goods by Road (ADR)

Международное соглашение о перевозках опасных грузов по железным дорогам (RID)

Regulation concerning the International Carriage of Dangerous Goods by Rail (RID)

Европейское соглашение о международной перевозке опасных грузов по внутренним водным путям (ADN)

European Agreement concerning the International Carriage of Dangerous Goods by Inland Navigation (ADN)

Международный код для перевозки опасных материалов морскими судами (кодекс ММОГ)

International Maritime Dangerous Goods Code (IMDG-Code)

International Civil Aviation Organization-

Технические положения по перевозкам опасных товаров воздушными судами (ICAO-TI)

Technical Instructions for the Safe Transport of Dangerous Goods by Air (ICAO-TI)

International Air Transport Association -

Положения, регулирующие транспорт опасных грузов (IATA-DGR)

Dangerous Goods Regulations (IATA-DGR)

Tel: +49 (0)7151-1707-0
Fax: +49 (0)7151-1707-110
Amtsgericht Stuttgart HRA 728253
Persönlich haftender Gesellschafter: Föll GmbH
Amtsgericht Stuttgart HRB260321

E-Mail: info@rems.de
Internet: www.rems.de
Geschäftsführer:
Dr.-Ing. Christoph Föll-Laubengeiger
Dr.-Ing. Rudolf Wagner

16. Степень заряженности 16 В согласно поправке к Правилам перевозки опасных грузов ИАТА от 1 апреля 2016 года

State of Charge in Accordance with the Changes to the IATA Dangerous Goods Regulations Effective from 1 April 2016

В соответствии с поправкой к Правилам перевозки опасных грузов IATA, которая вступила в силу 1 апреля 2016 года, компания REMS GmbH & Co KG подтверждает, что литий-ионные аккумуляторы (UN 3480), изготовленные с 1 апреля 2016 года, передаются для транспортировки со степенью заряженности (SoC) не более 30 % от их расчетной емкости.

In accordance with the changes to the IATA Dangerous Goods Regulations, which entered into force on 1 April 2016, REMS GmbH & Co KG confirms that all lithium-ion batteries (UN 3480) manufactured from 1 April 2016 will be handed over for transportation with their state of charge (SoC) not exceeding 30% of their design capacity.

17. Дополнительная информация

Other Information

Настоящая информация составлена со всей тщательностью, добросовестностью и честностью. REMS GmbH & Co KG снимает с себя любую ответственность в отношении точности, достоверности и полноты приведенной информации! Проверка соответствия, полноты и актуальности этой информации для своих целей является исключительно ответственностью пользователя.

This information has been meticulously compiled to the best of our knowledge and belief. REMS GmbH & Co KG excludes any warranty whatsoever for the accuracy, reliability or completeness of the information provided herein! It is the user's responsibility to check the information's suitability, completeness and timeliness with regard to the relevant purpose of use.

Tel: +49 (0)7151-1707-0

Fax: +49 (0)7151-1707-110

Amtsgericht Stuttgart HRA 728253

Persönlich haftender Gesellschafter: Föll GmbH

Amtsgericht Stuttgart HRB260321

E-Mail: info@rems.de

Internet: www.rems.de

Geschäftsführer:

Dr.-Ing. Christoph Föll-Laubengeiger

Dr.-Ing. Rudolf Wagner

ΔΕΛΤΙΟ ΔΕΔΟΜΕΝΩΝ ΑΣΦΑΛΕΙΑΣ ΠΡΟΙΟΝΤΟΣ MATERIAL SAFETY DATA SHEET

Μπαταρία ιόντων λιθίου-οξειδίου του μαγγανίου
Lithium ion manganese oxide battery

Προϊόντος: 571555 R14H / Item no.: 571555 R14H

Σύμφωνα με τον κανονισμό (ΕΚ) αριθ 1907/2006 (Reach), δελτίο δεδομένων ασφάλειας πρέπει να παρέχεται μόνο για ουσίες και παρασκευάσματα. Οι μπαταρίες δεν εμπίπτουν στις απαιτήσεις αυτού του κανονισμού.

According to Regulation (EC) No. 1907/2006 (REACH), a safety data sheet must be provided solely for substances and preparations. Batteries are not affected by the requirements of this Regulation.

1. Ταυτοποίηση παρασκευάσματος και κατασκευαστή

Product Designation and Name of the Manufacturer

Αναγνώριση: <i>Identification</i>	Κατηγορία προϊόντος: <i>Product category</i>	Μπαταρία Ιόντων Λιθίου <i>Lithium-ion battery</i>
	Όνομα προϊόντος: <i>Model designation</i>	4S2P
	Ονομαστική τάση: <i>Nominal voltage</i>	14.4V
	Ονομαστική χωρητικότητα: <i>Nominal capacity</i>	5.0Ah
	Ονομαστική ενέργεια: <i>Nominal energy</i>	72Wh
	Χημικό σύστημα: <i>Chemical system</i>	Λιθίο-οξείδιο του μαγγανίου / Γραφίτης <i>Lithium manganese oxide / Graphite</i>
	Επαναφορτιζόμενη: <i>Rechargeable</i>	Ναι Yes

Κατασκευαστής: <i>Manufacturer</i>	Όνομα και διεύθυνση: <i>Name and address</i>	REMS GmbH & Co KG Stuttgarter Straße 83 D-71332 Waiblingen
	Τηλέφωνο / <i>phone:</i>	+49 (0) 7151-1707-0
	Τέλεφαξ / <i>fax:</i>	+49 (0) 7151-1707-110
	e-mail / <i>e-mail:</i>	info@rems.de

Tel: +49 (0)7151-1707-0
Fax: +49 (0)7151-1707-110
Amtsgericht Stuttgart HRA 728253
Persönlich haftender Gesellschafter: Föll GmbH
Amtsgericht Stuttgart HRB260321

E-Mail: info@rems.de
Internet: www.rems.de
Geschäftsführer:
Dr.-Ing. Christoph Föll-Laubengeiger
Dr.-Ing. Rudolf Wagner

2. Προσδιορισμός επικινδυνότητας:

Possible Hazards

- Ταξινόμηση:** επαναφορτιζόμενη μπαταρία ιόντων λιθίου έχει ονομαστική ενέργεια >100Wh. Και ως εκ τούτου εμπίπτει σε ειδικές διατάξεις στους διάφορους κανονισμούς μεταφοράς επικίνδυνων εμπορευμάτων.
- Classification:** *This lithium-ion battery has a nominal energy of > 100Wh, which is why it is subject to certain special provisions under the hazardous substances law.*
- Κίνδυνοι:** Οι μπαταρίες ιόντων λιθίου μπορεί να παρουσιάσουν κίνδυνο πυρκαγιάς ή έκρηξης ή χημικού εγκαύματος λόγω κακής χρήσης. Μην βραχυκυκλώνεται, τρυπάτε, καίτε, συνθλίβετε, βυθίζετε, εξαναγκάζετε την εκφόρτιση ή εκθέτετε σε θερμοκρασίες πάνω από το δηλωθέν εύρος θερμοκρασίας λειτουργίας του προϊόντος. Παρακαλούμε να διαβάστε προσεκτικά τις οδηγίες. Κάτω από κανονικές συνθήκες χρήσης, οι χημικές ουσίες και τα μέταλλα περιέχονται σε σφραγισμένο δοχείο και δεν υπάρχει κίνδυνος επαφής με τοξικές ουσίες. Κίνδυνος έκθεσης υπάρχει μόνο σε περίπτωση κακής χρήσης (μηχανικής, θερμικής, ηλεκτρικής) που οδηγεί στην ενεργοποίηση των βαλβίδων ασφαλείας και/ή η διάτρηση του περιβλήματος της μπαταρίας. Ενδέχεται να ακολουθήσει διαρροή ηλεκτρολυτών, αντίδραση των υλικών του ηλεκτροδίου με υγρασία/νερό ή εξαερισμός/ φωτιά/έκρηξη της μπαταρίας, ανάλογα με τις περιστάσεις.
- Hazards:** *When handled improperly, lithium-ion batteries may explode, or cause fire or chemical burns. Batteries must not be short-circuited, punctured, thrown into fire, crushed, immersed in water, forcibly discharged or exposed to temperatures exceeding the product's specified operating range. Please read the operating instructions thoroughly.*
The escape of and contact with any hazardous and toxic substances is not possible under normal conditions of use. A risk of exposure only exists in case of improper (mechanical, thermal, electrical) use which leads to the activation of safety valves and/or the rupture of the battery housing. Depending on the surrounding circumstances, the following might occur: electrolyte leakage, reaction of the electrode materials with moisture/water or battery venting/fire/explosion.
- Τοξικότητα:** Σε περίπτωση που μία μπαταρία καίει, οι ατμοί μπορεί να ερεθίσουν τα μάτια, το δέρμα και την αναπνευστική οδό.
- Toxicity:** *If a battery burns, smoke or vapors are generated. These may cause eye, skin and respiratory tract irritations.*

Tel: +49 (0)7151-1707-0

Fax: +49 (0)7151-1707-110

Amtsgericht Stuttgart HRA 728253

Persönlich haftender Gesellschafter: Föll GmbH

Amtsgericht Stuttgart HRB260321

E-Mail: info@rems.de

Internet: www.rems.de

Geschäftsführer:

Dr.-Ing. Christoph Föll-Laubengeiger

Dr.-Ing. Rudolf Wagner

3. Σύνθεση και πληροφορίες για τα συστατικά

Composition and Information About the Individual Components

Η μπαταρία περιέχει τα ακόλουθα.

The following components are contained in the sealed cell.

Συστατικό	Όνομα υλικού	Εύρος συγκέντρωσης (% κ.β.)	Αριθμός CAS
Θετικό ηλεκτρόδιο	Λίθιο οξειδίο μετάλλου μετάπτωσης $Li[M]_m[O]_n$	20~60	12190-79-3 12057-17-9 182442-95-1
Βάση θετικού ηλεκτροδίου	Αλουμίνιο	1~10	7429-90-5
Αρνητικό ηλεκτρόδιο	Άνθρακας	10~30	7429-90-5
Βάση αρνητικού ηλεκτροδίου	Χαλκός	1~15	7440-44-0
Ηλεκτρολύτης	Οργανικός ηλεκτρολύτης περιλαμβάνει κυρίως ανθρακικό εστέρα	5~25	Εμπιστευτικό
Εξωτερική θήκη	Αλουμίνιο, σίδηρο, πλαστικοποιημένο αλουμίνιο	1~30	7429-90-5; 7439-89-6

Component	Material name	Concentration range (wt %)	CAS number
Positive electrode	Lithium transition metal oxidate $Li[M]_m[O]_n$	20~60	12190-79-3 12057-17-9 182442-95-1
Positive electrode's base	Aluminum	1~10	7429-90-5
Negative electrode	Carbon	10~30	7429-90-5
Negative electrode's base	Copper	1~15	7440-44-0
Electrolyte	Organic electrolyte principally involves ester carbo- nate	5~25	Confidential
Outer case	Aluminum, iron, aluminum laminated plastic	1~30	7429-90-5; 7439-89-6

Tel: +49 (0)7151-1707-0
Fax: +49 (0)7151-1707-110
Amtsgericht Stuttgart HRA 728253
Persönlich haftender Gesellschafter: Föll GmbH
Amtsgericht Stuttgart HRB260321

E-Mail: info@rems.de
Internet: www.rems.de
Geschäftsführer:
Dr.-Ing. Christoph Föll-Laubengeiger
Dr.-Ing. Rudolf Wagner

4. Μέτρα πρώτων βοηθειών

First Aid Measures

Οι χημικές ουσίες περιέχονται σε σφραγισμένα δοχεία ώστε υπό κανονικές συνθήκες χρήσης να μην εξέλθουν. Κίνδυνος έκθεσης προκύπτει μόνο εάν η μπαταρία υποστεί κακή μηχανική χρήση.

The chemicals are contained in a sealed housing so that they cannot escape during normal use. Leakage may only be caused as a result of mechanical damage to the housing.

Αν διαρρέουν χημικές ουσίες ακολουθήστε τις οδηγίες:
If chemicals do leak, the following must be observed

Εισπνοή:	Τα περιεχόμενα μίας ανοιχτής μπαταρίας μπορούν να προκαλέσουν ερεθισμό της αναπνευστικής οδού. Παράσχετε καθαρό αέρα και καλέστε ένα γιατρό.
<i>Inhalation:</i>	<i>Escaping gases may cause respiratory tract irritation. Immediately ventilate or leave the room to get into fresh air. In more serious cases, call a doctor immediately.</i>
Επαφή με το δέρμα:	Τα περιεχόμενα μίας ανοιχτής μπαταρίας μπορούν να προκαλέσουν ερεθισμό του δέρματος. Πλύνετε το δέρμα με σαπούνι και νερό.
<i>Skin contact:</i>	<i>Skin irritations may occur. Thoroughly wash the skin with soap and water.</i>
Επαφή με τα μάτια:	Τα περιεχόμενα μίας ανοιχτής μπαταρίας μπορούν να προκαλέσουν ερεθισμό των ματιών. Ξεπλύνετε αμέσως τα μάτια με άφθονο νερό για 15 λεπτά και ζητήστε ιατρική βοήθεια.
<i>Eye contact:</i>	<i>Eye irritations may occur. Immediately and thoroughly rinse the eyes with water for 15 minutes then seek medical assistance.</i>

5. Μέτρα πυρόσβεσης

Fire Fighting Measures

Σε περίπτωση πυρκαγιάς:	Χρησιμοποιείτε μόνο πυροσβεστήρες ξηράς σκόνης.
<i>In case of fire:</i>	<i>Only use Class D (dry powder) fire extinguishers.</i>
Προσοχή:	Πριν ξεκινήσετε να σβήσετε τη φωτιά, βεβαιωθείτε ότι βρίσκεστε στην προσηνεμη πλευρά, ώστε να μην εισπνέετε τοξικούς ατμούς.
<i>Caution:</i>	<i>Before you start extinguishing the fire, be sure to go to the side of the fire from which the wind is coming. In this way, you will not inhale any toxic vapours.</i>

Tel: +49 (0)7151-1707-0
Fax: +49 (0)7151-1707-110
Amtsgericht Stuttgart HRA 728253
Persönlich haftender Gesellschafter: Föll GmbH
Amtsgericht Stuttgart HRB260321

E-Mail: info@rems.de
Internet: www.rems.de
Geschäftsführer:
Dr.-Ing. Christoph Föll-Laubengeiger
Dr.-Ing. Rudolf Wagner

6. Μέτρα για την αντιμετώπιση τυχαίας έκλυσης

Measures to Be Implemented in Case of Accidental Leakage

Σκουπίστε το διαρρέον υγρό του ηλεκτρολύτη με ένα απορροφητικό πανί.
Leaked electrolyte fluid should be wiped up with an absorbent cloth.

Σε περίπτωση μεγάλης διαρροής του ηλεκτρολύτη, θα πρέπει να φοράτε:
Personal protective equipment should be worn in case of larger leakages:

- ↪ **προστατευτικό ρουχισμό**
protective clothing
- ↪ **μάσκα αερίου για οργανικά αέρια**
gas mask for protection against organic gases
- ↪ **προστατευτικά γυαλιά ασφαλείας**
safety goggles
- ↪ **προστατευτικά γάντια**
protective gloves

7. Χειρισμός και αποθήκευση

Handling and Storage

- Χειρισμός:** Μην ανοίγετε την μπαταρία. Μην την συνθλίβετε, αποσυναρμολογείτε, ρίχνετε από μεγάλο ύψος ή συγκολλάτε.
Handling: Neither open, crush nor disassemble the battery, nor let it drop from a great height nor solder anything onto it.
- Φόρτιση:** Φορτίστε εντός των ορίων θερμοκρασίας από 0°C έως +45 °C
Φορτίστε μόνο με φορτιστή σχεδιασμένο για αυτή τη μπαταρία.
*Charging: The charging temperature must be between +32 °F and +113 °F.
Only use the charger designated for this battery.*
- Αποφόρτιση:** Εκφορτίστε εντός των ορίων θερμοκρασίας από -20 °C έως +60 °C
Discharging: The battery may only be discharged at temperatures from -4 °F to +140 °F.
- Προσοχή:** Λάθος χειρισμός μπορεί να προκαλέσει πυρκαγιά ή έκρηξη.
Caution: Improper handling may cause fire or explosion.
- Αποθήκευση:** Θερμοκρασία: 20°C έως +40 °C για λιγότερο από 3 μήνες
Storage: Temperature: -4 °F to +113 °F for less than 3 months
Εύρος Υγρασίας: 0 % έως 80 %
Humidity range: 0 % to 80 %
Ο χώρος πρέπει να αερίζεται καλά. / *Store in a well-ventilated place.*
Βραχυκύκλωμα μπορεί να προκαλέσει πυρκαγιά. / *Short circuits may cause fires.*
Η μπαταρία δεν πρέπει να αποθηκεύεται μαζί με μεταλλικά αντικείμενα. / *Do not store along with other metal objects.*

Tel: +49 (0)7151-1707-0
Fax: +49 (0)7151-1707-110
Amtsgericht Stuttgart HRA 728253
Persönlich haftender Gesellschafter: Föll GmbH
Amtsgericht Stuttgart HRB260321

E-Mail: info@rems.de
Internet: www.rems.de
Geschäftsführer:
Dr.-Ing. Christoph Föll-Laubengeiger
Dr.-Ing. Rudolf Wagner

8. Έλεγχοι έκθεσης των αποθηκευμένων προϊόντων και ατομική προστασία

Monitoring of the Stored Goods and Personal Protective Equipment

Πρέπει να τηρούνται οι υποδείξεις του σημείου 7. Ελέγξτε ότι η θερμοκρασία αποθήκευσης είναι εντός των ορίων ανά πάσα στιγμή. Επίσης εξασφαλίστε καλό αερισμό και υγρασία που κυμαίνεται εντός των ορίων. Για κανονική χρήση, δεν απαιτείται προστατευτικός εξοπλισμός.

Observe the information stated in Section 7. Continuously monitor the storage temperature so as to ensure that it is within the specified limits. Apart from that, it is required to ensure good ventilation and that the humidity does not exceed the specified limits. No protective equipment is required during normal handling.

9. Φυσικές και χημικές ιδιότητες

Physical and Chemical Properties

Εμφάνιση: <i>Appearance:</i>	8 κυψέλες σε περίβλημα <i>Housing with 8 cells</i>
Βάρος: <i>Weight:</i>	520 g 520 g
Χημικές ιδιότητες: <i>Chemical properties:</i>	βλέπε Σημείο 3 <i>see Section 3</i>

10. Σταθερότητα και δραστικότητα

Stability and Reactivity

Κατά τη διάρκεια αποθήκευσης περιόδου άνω των 12 μηνών η χωρητικότητα θα μειωθεί και η διάρκεια λειτουργίας της μπαταρίας θα είναι μικρότερη. Αν σε οποιαδήποτε περίπτωση ή περίσταση προκύψει διαρροή ηλεκτρολύτη, το πλαστικό περίβλημα μπορεί να καταστραφεί.

Storage periods of more than 12 months will decrease the battery's capacity and expected lifespan. Electrolyte leakages may damage the housing on the inside.

11. Τοξικολογικές πληροφορίες

Toxicological Information

Κατά την κανονική χρήση δεν θα υπάρχει διαρροή και, ως εκ τούτου, δεν θα υπάρξει επαφή με τοξικά συστατικά της μπαταρίας.

The escape of and contact with any hazardous and toxic substances is not possible under normal conditions of use.

Tel: +49 (0)7151-1707-0
Fax: +49 (0)7151-1707-110
Amtsgericht Stuttgart HRA 728253
Persönlich haftender Gesellschafter: Föll GmbH
Amtsgericht Stuttgart HRB260321

E-Mail: info@rems.de
Internet: www.rems.de
Geschäftsführer:
Dr.-Ing. Christoph Föll-Laubengeiger
Dr.-Ing. Rudolf Wagner

12. Οικολογικές πληροφορίες

Environment-Related Information

Κατά την κανονική χρήση της μπαταρίας, δεν προκύπτει ρύπανση του περιβάλλοντος. Ωστόσο, η μπαταρία περιέχει χημικές ουσίες που μπορούν να θέσουν σε κίνδυνο το περιβάλλον. Κατά την απόρριψη των μπαταριών, ακολουθείτε πάντα τις οδηγίες όπως περιγράφονται στο σημείο 13.

Provided that the battery is handled properly, environmental pollution does not occur. After use, however, the battery must be disposed of separately as it contains hazardous chemicals. See Section 13.

13. Στοιχεία σχετικά με την απόρριψη

Disposal Instructions

Η μπαταρία αποτελεί επικίνδυνο απόβλητο.

Δεν επιτρέπεται η απόρριψή της με τα κοινά απορρίμματα.

Αν η μπαταρία είναι άχρηστη, απορρίψτε την σύμφωνα με τους ισχύοντες κανονισμούς της ανακύκλωσης.

Batteries are classified as hazardous waste.

The battery may only be disposed of by returning it to an authorized collection point.

It is prohibited to dispose of the battery with normal household waste.

14. Πληροφορίες σχετικά με τη μεταφορά

Transportation information

Γενικές Επεξηγήσεις

General explanation

Ισχύουν περιοριστικοί κανονισμοί για τη μεταφορά των εν λόγω εμπορευμάτων αεροπορικά, οδικώς, σιδηροδρομικά ή δια θαλάσσης. Παρακαλούμε βρείτε παρακάτω αναφορές σε αυτούς τους κανονισμούς. Καθώς η νομοθεσία υπόκειται σε συχνές αλλαγές, ο μεταφορέας πρέπει να διασφαλίζει ότι τα εμπορεύματα μεταφέρονται σύμφωνα με τη νομοθεσία που ισχύει και εφαρμόζεται κατά τη στιγμή της αποστολής. Αν χρειάζεστε υποστήριξη σχετικά με το εν λόγω ζήτημα, επικοινωνήστε με τον κατασκευαστή.

Restrictive regulations are applicable to the product's transport by air, road, rail or sea. Below you will find references to these regulations. As these laws are subject to frequent changes, the transport company shall ensure that the products are transported according to the regulations applicable at the time of shipment. Please contact the manufacturer of the products if you need any assistance in this matter.

Μεταφορά σύμφωνα με την κατευθυντήρια γραμμή UN 3480/3481 (1).

Οι κανονισμοί για μπαταρίες με χωρητικότητα ≤ 100 Wh θα πρέπει να εφαρμόζονται.

Transportation of the battery according to Directive UN 3480/3481 (1).

The regulations for batteries with nominal energy ≤ 100 Wh have to be used.

Η μπαταρία **πρέπει** να προστατεύεται από ενδεχόμενο βραχυκύκλωμα.

*The battery **must** be protected against short circuits.*

Tel: +49 (0)7151-1707-0
Fax: +49 (0)7151-1707-110
Amtsgericht Stuttgart HRA 728253
Persönlich haftender Gesellschafter: Föll GmbH
Amtsgericht Stuttgart HRB260321

E-Mail: info@rems.de
Internet: www.rems.de
Geschäftsführer:
Dr.-Ing. Christoph Föll-Laubengeiger
Dr.-Ing. Rudolf Wagner

Ο κανονισμός μεταφοράς εξαρτάται από την περιοχή και τον τρόπο μεταφοράς.
The transport regulations depend on the country-specific provisions and on the type of transport.

Κάθε αποστολή πρέπει να φέρει τις ακόλουθες ετικέτες και την εξής σημείωση κάλυψης, δείτε παρακάτω:
Each package must be marked with the following labels. Furthermore, it is required to enclose an accompanying note as stated below

Επισημανση για οδική /σιδηροδρομική μεταφορά και Θάλασσα
Labelling for transport by road/rail and sea



+ ετικέτα με τη διεύθυνση αποστολέα /παραλήπτη
+ Label stating the consignor and consignee

ADR/RID/IMDG-Code: Η μπαταρία πληροί τις απαιτήσεις της Ειδικής Διάταξης 188.
The battery meets the requirements of special provision 188.

Μόνο Ετικέτα Αποστολής CAO /μεταφορικό αεροσκάφος
Shipping label/cargo aircraft only (CAO)



+ ετικέτα με τη διεύθυνση αποστολέα /παραλήπτη
+ Label stating the consignor and consignee

Σημείωση κάλυψης / *Accompanying note:* UN 3480 LITHIUM-ION BATTERIES, 9, -, (E)

Ειδικής Διάταξης 188
special provision 188

ICAO-TI/IATA-DGR: Οδηγίες συσκευασίας 965, Μέρος II ή Μέρος IB
Packing instruction 965, Part II or Part IB

Tel: +49 (0)7151-1707-0

Fax: +49 (0)7151-1707-110

Amtsgericht Stuttgart HRA 728253

Persönlich haftender Gesellschafter: Föll GmbH

Amtsgericht Stuttgart HRB260321

E-Mail: info@rems.de

Internet: www.rems.de

Geschäftsführer:

Dr.-Ing. Christoph Föll-Laubengeiger

Dr.-Ing. Rudolf Wagner

15. Διατάξεις και Κανονισμοί

Provisions and Regulations

Σημειώσεις επί των κανονισμών που αφορούν τη μεταφορά επικίνδυνων εμπορευμάτων:

References to provisions concerning the transport of hazardous goods:

Νόμος περί μεταφοράς επικίνδυνων εμπορευμάτων (GGBefG)

Transportation of Dangerous Goods Act (GGBefG)

Διάταγμα για τις μεταφορές επικίνδυνων εμπορευμάτων δια οδικών, σιδηροδρομικών και εσωτερικών πλωτών οδών (GGVSEB)

Ordinance on the Transport of Dangerous Goods by Road, Rail and Inland Waterways (GGVSEB)

Διάταγμα για την θαλάσσια μεταφορά επικίνδυνων εμπορευμάτων (GGVSee)

Ordinance on the Transport of Dangerous Goods by Sea (GGVSee)

Νόμος για την εναέρια κυκλοφορία (LuftVG), Εντολή αδειοδότησης εναέριας κυκλοφορίας (LuftVZO)

Air Traffic Act (LuftVG), Air Traffic Licensing Order (LuftVZO)

Ευρωπαϊκή συμφωνία για τις διεθνείς οδικές μεταφορές επικίνδυνων εμπορευμάτων (ADR)

European Agreement concerning the International Carriage of Dangerous Goods by Road (ADR)

Κανονισμός για τις διεθνείς σιδηροδρομικές μεταφορές επικίνδυνων εμπορευμάτων (RID)

Regulation concerning the International Carriage of Dangerous Goods by Rail (RID)

Ευρωπαϊκή συμφωνία για την διεθνή μεταφορά επικίνδυνων εμπορευμάτων με εσωτερική ναυσιπλοΐα (ADN)

European Agreement concerning the International Carriage of Dangerous Goods by Inland Navigation (ADN)

Διεθνής κώδικας θαλάσσιων επικίνδυνων εμπορευμάτων (IMDG-Code)

International Maritime Dangerous Goods Code (IMDG-Code)

International Civil Aviation Organization -

Τεχνικές οδηγίες για την ασφαλή μεταφορά επικίνδυνων εμπορευμάτων με αεροσκάφος (ICAO-TI)

Technical Instructions for the Safe Transport of Dangerous Goods by Air (ICAO-TI)

International Air Transport Association -

Κανονισμοί για τα επικίνδυνα εμπορεύματα (IATA-DGR)

Dangerous Goods Regulations (IATA-DGR)

Tel: +49 (0)7151-1707-0

Fax: +49 (0)7151-1707-110

Amtsgericht Stuttgart HRA 728253

Persönlich haftender Gesellschafter: Föll GmbH

Amtsgericht Stuttgart HRB260321

E-Mail: info@rems.de

Internet: www.rems.de

Geschäftsführer:

Dr.-Ing. Christoph Föll-Laubengeiger

Dr.-Ing. Rudolf Wagner

16. Κατάσταση φόρτισης σύμφωνα με τις αλλαγές του κανονισμού IATA που ισχύουν από την 1η Απριλίου 2016

State of Charge in Accordance with the Changes to the IATA Dangerous Goods Regulations Effective from 1 April 2016

Σύμφωνα με τις αλλαγές των κανονισμών περί επικίνδυνων εμπορευμάτων της IATA που ισχύουν από την 1η Απριλίου 2016, η REMS GmbH & Co KG επιβεβαιώνει ότι από την 1η Απριλίου 2016, όλες οι μπαταρίες ιόντων λιθίου, που έχουν κατασκευαστεί, αποστέλλονται μόνο με φόρτιση που δεν υπερβαίνει το 30% της ονομαστικής τους χωρητικότητας.

In accordance with the changes to the IATA Dangerous Goods Regulations, which entered into force on 1 April 2016, REMS GmbH & Co KG confirms that all lithium-ion batteries (UN 3480) manufactured from 1 April 2016 will be handed over for transportation with their state of charge (SoC) not exceeding 30% of their design capacity.

17. Άλλες πληροφορίες

Other information

Οι πληροφορίες αυτές εξ όσων γνωρίζουμε και πιστεύουμε έχουν συνταχθεί με ακρίβεια. Ωστόσο, η REMS GmbH & Co KG αποκλείει οποιαδήποτε εγγύηση για την ακρίβεια, την αξιοπιστία ή την πληρότητα των πληροφοριών που περιέχονται. Αποτελεί ευθύνη του χρήστη να βεβαιωθεί όσον αφορά την καταλληλότητα, την πληρότητα και την σχετικότητα των πληροφοριών αυτών για συγκεκριμένη χρήση.

This information has been meticulously compiled to the best of our knowledge and belief. REMS GmbH & Co KG excludes any warranty whatsoever for the accuracy, reliability or completeness of the information provided herein! It is the user's responsibility to check the information's suitability, completeness and timeliness with regard to the relevant purpose of use.

Tel: +49 (0)7151-1707-0
Fax: +49 (0)7151-1707-110
Amtsgericht Stuttgart HRA 728253
Persönlich haftender Gesellschafter: Föll GmbH
Amtsgericht Stuttgart HRB260321

E-Mail: info@rems.de
Internet: www.rems.de
Geschäftsführer:
Dr.-Ing. Christoph Föll-Laubengeiger
Dr.-Ing. Rudolf Wagner

ÜRÜN GÜVENLİK VERİLERİ BELGESİ MATERIAL SAFETY DATA SHEET

Lityum iyon mangan oksit pil
Lithium ion manganese oxide battery

Ürün no.: 571555 R14H / Item no.: 571555 R14H

(EG) No. 1907/2006 (REACH) Talimatnamesi uyarınca güvenlik verilerinin sadece malzeme ve ürünler için sunulmalıdır. Piller talimatnamede istenenler kapsamın girmemektedir.

According to Regulation (EC) No. 1907/2006 (REACH), a safety data sheet must be provided solely for substances and preparations. Batteries are not affected by the requirements of this Regulation.

1. Ürün ve imalatçısının tanımlanması

Product Designation and Name of the Manufacturer

Tanımlama: <i>Identification</i>	Ürün kategorisi: <i>Product category</i>	Lityum iyon pili <i>Lithium-ion battery</i>
	Tanımı: <i>Model name</i>	4S2P
	Nominal gerilim: <i>Nominal voltage</i>	14.4V
	Nominal kapasite: <i>Nominal capacity</i>	5.0Ah
	Nominal enerji: <i>Nominal energy</i>	72Wh
	Kimyasal sistem: <i>Chemical system</i>	Lityum - mangan oksit / grafit <i>Lithium manganese oxide / Graphite</i>
	Şarj edilebilir: <i>Rechargeable</i>	Evet <i>Yes</i>

İmalatçısı: <i>Manufacturer</i>	İsmi ve adresi: <i>Name and address</i>	REMS GmbH & Co KG Stuttgarter Straße 83 D-71332 Waiblingen
---	---	---

Telefon / <i>phone</i> :	+49 (0) 7151/ 1707-0
Telefaks / <i>fax</i> :	+49 (0) 7151/ 1707-110
Eposta / <i>e-mail</i> :	info@rems.de

Tel: +49 (0)7151-1707-0
Fax: +49 (0)7151-1707-110
Amtsgericht Stuttgart HRA 728253
Persönlich haftender Gesellschafter: Föll GmbH
Amtsgericht Stuttgart HRB260321

E-Mail: info@rems.de
Internet: www.rems.de
Geschäftsführer:
Dr.-Ing. Christoph Föll-Laubengeiger
Dr.-Ing. Rudolf Wagner

2. Sözkonusu tehlikeler:

Possible Hazards:

- Sınıflandırma:** Li-Iyon pilinin nominal enerjisi > 100Wh olduğundan tehlikeli maddeler hukukunun belli özel belirlemelerine tabiidir.
- Classification:** *This lithium-ion battery has a nominal energy of > 100Wh, which is why it is subject to certain special provisions under the hazardous substances law.*
- Tehlikeler:** Uygun şekilde kullanılmamaları halinde lityum iyon pilleri yanabilir, patlayabilir veya kimyasal yanıklara yol açabilir. Pilleri kesinlikle kısa devre etmeyiniz, delmeyiniz, ateşe ve suya atmayınız, ezmeyiniz, zorla deşarj etmeyiniz ve belirtilen işletme sıcaklığının dışında olan ısılarla maruz bırakmayınız. Kullanma kılavuzunu lütfen dikkatli bir şekilde okuyunuz. Normal şartlarda tehlikeli maddeler çıkmaz ve zehirli maddelerle temas oluşmaz. Sadece amacı doğrultusunda kullanılmaması halinde (mekanik, termik, elektrik) tehlike mevcuttur ve emniyet valflerinin işlemesine ve/veya muhafazasının açılmasına yol açar. Ortamının koşullarına göre sonuçları elektrolit sıvısının çıkması, elektrod malzemelerinin nem/suya karşı reaksiyon göstermesi veya pil havalandırması/ ateş/ patlama olabilir.
- Hazards:** *When handled improperly, lithium-ion batteries may explode, or cause fire or chemical burns. Batteries must not be short-circuited, punctured, thrown into fire, crushed, immersed in water, forcibly discharged or exposed to temperatures exceeding the product's specified operating range. Please read the operating instructions thoroughly. The escape of and contact with any hazardous and toxic substances is not possible under normal conditions of use. A risk of exposure only exists in case of improper (mechanical, thermal, electrical) use which leads to the activation of safety valves and/or the rupture of the battery housing. Depending on the surrounding circumstances, the following might occur: electrolyte leakage, reaction of the electrode materials with moisture/water or battery venting/fire/explosion.*
- Zehirlilik:** Pilin yanması oluşan duman ve buharlaşmalar göz, deri ve solunum yollarında kimyasal yanmalara yol açabilir.
- Toxicity:** *If a battery burns, smoke or vapors are generated. These may cause eye, skin and respiratory tract irritations.*

Tel: +49 (0)7151-1707-0
 Fax: +49 (0)7151-1707-110
 Amtsgericht Stuttgart HRA 728253
 Persönlich haftender Gesellschafter: Föll GmbH
 Amtsgericht Stuttgart HRB260321

E-Mail: info@rems.de
 Internet: www.rems.de
 Geschäftsführer:
 Dr.-Ing. Christoph Föll-Laubengeiger
 Dr.-Ing. Rudolf Wagner

3. Öğelere ilişkin bilgiler, öğelerin bileşimi

Composition and Information About the Individual Components

Aşağıdaki parçalar kapalı hücrenin içinde bulunmaktadır.
The following components are contained in the sealed cell

Miktarı	Malzeme ismi / Material name	Konsantrasyon miktarı (wt %)	CAS-numarası
Positif elektrod	Lityum transisyon metal oksidat Li[M]m[O]n	20~60	12190-79-3 12057-17-9 182442-95-1
Positif elektrod temeli	Alüminyum	1~10	7429-90-5
Negatif elektrod	Karbon	10~30	7429-90-5
Negatif elektrod temeli	Bakır	1~15	7440-44-0
Elektrolit	Organik elektrolit esas itibarıyla ester karbonat içerir	5~25	gizli
Dış muhafaza	Alüminyum, demir, alüminyum kaplı plastik	1~30	7429-90-5; 7439-89-6

Component	Material name	Concentration range (wt %)	CAS number
Positive electrode	Lithium transition metal oxidate Li[M]m[O]n	20~60	12190-79-3 12057-17-9 182442-95-1
Positive electrode's base	Aluminum	1~10	7429-90-5
Negative electrode	Carbon	10~30	7429-90-5
Negative electrode's base	Copper	1~15	7440-44-0
Electrolyte	Organic electrolyte principally involves ester carbonate	5~25	Confidential
Outer case	Aluminum, iron, aluminum laminated plastic	1~30	7429-90-5; 7439-89-6

Tel: +49 (0)7151-1707-0
Fax: +49 (0)7151-1707-110
Amtsgericht Stuttgart HRA 728253
Persönlich haftender Gesellschafter: Föll GmbH
Amtsgericht Stuttgart HRB260321

E-Mail: info@rems.de
Internet: www.rems.de
Geschäftsführer:
Dr.-Ing. Christoph Föll-Laubengeiger
Dr.-Ing. Rudolf Wagner

4. İlk yardım önlemleri

First Aid Measures

3. bölümde belirtilen kimyasal maddeler kapalı muhafazada bulduklarından, normal kullanımda dışarıya çıkmazlar. Muhafazanın sadece mekanik hasara maruz kalmasıyla, dışarıya çıkma tehlikesi oluşur.

The chemicals stated in Section 3 are contained in a sealed housing so that they cannot escape during normal use. Leakage may only be caused as a result of mechanical damage to the housing.

Kimyasal madde sızıntısı olması halinde, aşağıdaki hususlara dikkat edilmelidir:
If chemicals do leak, the following must be observed

- Soluma:** Gaz sızıntıları solunum yollarında rahatsızlıklara yol açabilir. Derhal havalandırınız, temiz havaya çıkınız ve ciddi durumlarda doktor çağırınız.
- Inhalation: Escaping gases may cause respiratory tract irritation. Immediately ventilate or leave the room to get into fresh air. In more serious cases, call a doctor immediately.*
- Deriyle temas:** Deride tahriş olabilir. Deriyi su ve sabunla iyice yıkayınız.
- Skin contact: Skin irritations may occur. Thoroughly wash the skin with soap and water.*
- Gözle temas:** Gözlerde tahriş olabilir. Gözleri derhal 15 dakika süreyle iyice suyla yıkadıktan sonra, doktora gidiniz.
- Eye contact: Eye irritations may occur. Immediately and thoroughly rinse the eyes with water for 15 minutes then seek medical assistance.*

5. Yangına karşı alınacak önlemler

Fire Fighting Measures

- Yangın durumunda:** Sadece D yangın sınıfı yangın söndürücü kullanınız (toz söndürücü).
- In case of fire: Only use Class D (dry powder) fire extinguishers.*
- Dikkat:** Ateşi söndürmeye başlamadan önce ateşin rüzgar gelen tarafına geçiniz. Böylelikle zehirli duman solumaktan kaçınmış olursunuz.
- Caution: Before you start extinguishing the fire, be sure to go to the side of the fire from which the wind is coming. In this way, you will not inhale any toxic vapours.*

Tel: +49 (0)7151-1707-0
Fax: +49 (0)7151-1707-110
Amtsgericht Stuttgart HRA 728253
Persönlich haftender Gesellschafter: Föll GmbH
Amtsgericht Stuttgart HRB260321

E-Mail: info@rems.de
Internet: www.rems.de
Geschäftsführer:
Dr.-Ing. Christoph Föll-Laubengeiger
Dr.-Ing. Rudolf Wagner

6. İstenmeyen boşalmalarda alınacak önlemler

Measures to Be Implemented in Case of Accidental Leakage

Akmiş elektrolit sıvısının emici bir kumaş parçasıyla silinmesi tavsiye edilir.
Leaked electrolyte fluid should be wiped up with an absorbent cloth.

Büyük çaplı boşalmalarda koruyucu giysi giyilmesi tavsiye edilir.
Personal protective equipment should be worn in case of larger leakages:

- ↪ **Koruyucu giysi**
protective clothing
- ↪ **Organik gazlara karşı gaz maskesi**
gas mask for protection against organic gases
- ↪ **Koruma gözlüğü**
safety goggles
- ↪ **Koruma eldiveni**
protective gloves

7. Kullanımı ve depolanması

Handling and Storage

- Kullanımı:** Pili açmayınız, ezmeyiniz veya parçalamayınız, yüksekte atmayınız veya lehimlemeyle ekte bulunmayınız.
- Handling:** *Neither open, crush nor disassemble the battery, nor let it drop from a great height nor solder anything onto it.*
- Şarj:** Şarjın yapılacağı ortam ısısının 0 ile +45 ° derece arasında olması gerekir. Pilin sadece öngörülen şarj aletiyle şarj edilmesi gerekir.
- Charging:** *The charging temperature must be between +32 °F and +113 °F. Only use the charger designated for this battery.*
- Deşarj:** Pilin deşarjının yapılacağı ortam ısısının sadece -20 ile +60 ° derece arasında olması gerekir.
- Discharging:** *The battery may only be discharged at temperatures from -4 °F to +140 °F.*
- Dikkat:** Yalnız kullanım patlama veya yangına yol açabilir!
- Caution:** *Improper handling may cause fire or explosion!*
- Depolama:** Sıcaklık: 3 aydan az bir süre kapsamında -20 °C ile +40 °C arası
- Storage:** *Temperature: -4 °F to +104°F, for less than 3 months*
- Hava nem oranı: 0 ila % 80 arası
Humidity range: 0 % to 80 %
- Deponun iyi havalandırılmış olması gerekir. / *Store in a well-ventilated place.*
Kısa devre yangına yol açabilir. / *Short circuits may cause fires.*
Pillerin diğer madeni cisimlerle birlikte depolanmaması gerekir. / *Do not store along with other metal objects.*

Tel: +49 (0)7151-1707-0
Fax: +49 (0)7151-1707-110
Amtsgericht Stuttgart HRA 728253
Persönlich haftender Gesellschafter: Föll GmbH
Amtsgericht Stuttgart HRB260321

E-Mail: info@rems.de
Internet: www.rems.de
Geschäftsführer:
Dr.-Ing. Christoph Föll-Laubengeiger
Dr.-Ing. Rudolf Wagner

8. Depolanmış malların denetimi ve koruyucu teçhizat

Monitoring of the Stored Goods and Personal Protective Equipment

7. no altındaki bilgilendirmeleri dikkate alınız. Depo sıcaklığının belirtilen sınırlar arasında kalmasının sürekli denetlenmesi gerekir. Aynı şekilde iyi bir havalandırma ve hava nem oranının korunmasının da sağlanması gerekir. Pillerle normal hareket edişte koruyucu teçhizata gerek yoktur.

Observe the information stated in Section 7. Continuously monitor the storage temperature so as to ensure that it is within the specified limits. Apart from that, it is required to ensure good ventilation and that the humidity does not exceed the specified limits. No protective equipment is required during normal handling.

9. Fiziki ve kimyasal özellikler

Physical and Chemical Properties

Görünüü: <i>Appearance:</i>	Muhafazada 8 hücre <i>Housing with 8 cells</i>
Ağırlık: <i>Weight:</i>	520 g 520 g
Kimyasal özellikler: <i>Chemical properties:</i>	bk. no. 3 <i>see Section 3</i>

10. Sağlamlık ve kimyasal reaktivlik

Stability and Reactivity

12 aydan fazla depolanması pilin kapasitesini azaltır ve beklenen çalışma süresini azaltır. Sızan elektrolit muhafazanın içine hasar verebilir.

Storage periods of more than 12 months will decrease the battery's capacity and expected lifespan. Electrolyte leakages may damage the housing on the inside.

11. Toksikolojik bilgiler

Toxicological Information

Normal şartlarda pilden tehlikeli maddeler çıkmadığından zehirli maddelerle temas oluşmaz.

The escape of and contact with any hazardous and toxic substances is not possible under normal conditions of use.

Tel: +49 (0)7151-1707-0
Fax: +49 (0)7151-1707-110
Amtsgericht Stuttgart HRA 728253
Persönlich haftender Gesellschafter: Föll GmbH
Amtsgericht Stuttgart HRB260321

E-Mail: info@rems.de
Internet: www.rems.de
Geschäftsführer:
Dr.-Ing. Christoph Föll-Laubengeiger
Dr.-Ing. Rudolf Wagner

12. Çevre özellikli bilgiler

Environment-Related Information

Normal şartlarda pil çevreye zarar vermez. Ancak tehlikeli madde içerdiğinden, kullanımından sonra farklı bir atık rejimine tabi tutulmalıdır. Bk. no. 13

Provided that the battery is handled properly, environmental pollution does not occur. After use, however, the battery must be disposed of separately as it contains hazardous chemicals. See Section 13.

13. Atık rejimine ilişkin bilgiler

Disposal Instructions

Bir pil özel atıktır.

Pil sadece kabul edilen bir atık sistemi üzerinden atılabilir.

Pilin normal çöp toplama sistemi üzerinden kesinlikle atılmaması gerekir.

Batteries are classified as hazardous waste.

The battery may only be disposed of by returning it to an authorized collection point.

It is prohibited to dispose of the battery with normal household waste.

14. Nakliyata ilişkin bilgiler

Transportation information

Genel açıklama

General explanation

Bu ürünün hava, kara, demir ve deniz yoluyla nakliyatı için kısıtlayıcı belirlenmeler geçerlidir. Söz konusu belirlenmelere ilişkin bilgileri aşağıda bulabilirsiniz. Konuya ilişkin yasaların düzenli bir şekilde değişmelerinden beri, nakliyat tarihinde nakliyat için geçerli olan mevzuata göre nakliyatın gerçekleştirilmesi nakliyatı yapanın sorumluluğundadır. Bu konuda yardıma ihtiyaç duymanız halinde, ürün imalatçısına başvurunuz.

Restrictive regulations are applicable to the product's transport by air, road, rail or sea. Below you will find references to these regulations. As these laws are subject to frequent changes, the transport company shall ensure that the products are transported according to the regulations applicable at the time of shipment. Please contact the manufacturer of the products if you need any assistance in this matter.

Bataryanın taşıma ve nakil, işlemleri AB 3480/3481 (1) numaralı yönetmeliğe uygun şekilde gerçekleştirilmelidir. Sınıflandırılmış kapasitesi 100 Wh'a eşit veya daha az olan pillere yönelik kurallar uygulanır.

Transportation of the battery according to Directive UN 3480/3481 (1).

The regulations for batteries with nominal energy ≤ 100 Wh have to be used.

Pilin kısa devreye karşı korunmasının sağlanması **gerekir**.

The battery **must** be protected against short circuits.

Tel: +49 (0)7151-1707-0
Fax: +49 (0)7151-1707-110
Amtsgericht Stuttgart HRA 728253
Persönlich haftender Gesellschafter: Föll GmbH
Amtsgericht Stuttgart HRB260321

E-Mail: info@rems.de
Internet: www.rems.de
Geschäftsführer:
Dr.-Ing. Christoph Föll-Laubengeiger
Dr.-Ing. Rudolf Wagner

Nakliyat kuralları ülkelerin mevzuatına ve nakliyat yolunun özelliklerine göre düzenlenir.
The transport regulations depend on the country-specific provisions and on the type of transport.

Her bir paketleme biriminin, mutlaka aşağıda belirtilen yapışkanlı etiketlerle markalanmış olması ve aşağıda belirtilen şekildeki bir refakat belgesinin ürünün yanında yer alması, gerekmektedir:

Each package must be marked with the following labels. Furthermore, it is required to enclose an accompanying note as stated below:

Karayoluyla ve/veya demiryollarıyla ve deniz yollarıyla nakliye yapılan sevkiyatlarda kullanılması gereken etiketler
Labelling for transport by road/rail and sea



+ Gönderen ve Alıcı tarafı gösteren yapışkanlı etiket
+ Label stating the consignor and consignee

ADR/RID/IMDG-Code: PİL Özel Hüküm 188'in gerektirdiği koşulları tamamı ile sağlamaktadır.
The battery meets the requirements of special provision 188.

Gönderi / Havayoluyla CAO nakliye yönelik yapışkanlı etiket
Shipping label/cargo aircraft only (CAO)



+ Gönderen ve Alıcı tarafı gösteren yapışkanlı etiket
+ Label stating the consignor and consignee

Refakat Yazısı / Accompanying note: UN 3480 LITHIUM-ION BATTERIES, 9, -, (E)

Özel Hüküm 188
special provision 188

ICAO-TI/IATA-DGR: Paketleme Talimatları 965, Bölüm II veya Bölüm IB
Packing instruction 965, Part II or Part IB

Tel: +49 (0)7151-1707-0
Fax: +49 (0)7151-1707-110
Amtsgericht Stuttgart HRA 728253
Persönlich haftender Gesellschafter: Föll GmbH
Amtsgericht Stuttgart HRB260321

E-Mail: info@rems.de
Internet: www.rems.de
Geschäftsführer:
Dr.-Ing. Christoph Föll-Laubengeiger
Dr.-Ing. Rudolf Wagner

15. Şartlar ve Yönetmelikler

Provisions and Regulations

Tehlikeli maddelerin taşınmasıyla ilgili kurallar hakkında bilgiler:

References to provisions concerning the transport of hazardous goods:

Tehlikeli maddelerin taşınması kanununu (GGBefG)
Transportation of Dangerous Goods Act (GGBefG)

Tehlikeli Maddelerin Karayolu, Demiryolu ve Yurtiçi Suyolları Üzerinden Taşınmasına İlişkin Yönetmelik (GGVSEB)
Ordinance on the Transport of Dangerous Goods by Road, Rail and Inland Waterways (GGVSEB)

Tehlikeli Maddelerin Deniz Yolu Üzerinden Taşınmasına İlişkin Yönetmelik (GGVSee)
Ordinance on the Transport of Dangerous Goods by Sea (GGVSee)

Hava Trafikliği Kanununu (LuftVG), Hava Trafikliği İzin Yönetmeliği (LuftVZO)
Air Traffic Act (LuftVG), Air Traffic Licensing Order (LuftVZO)

Tehlikeli Maddelerin Karayoluyla Taşınması Hakkında Avrupa Anlaşması (ADR)
European Agreement concerning the International Carriage of Dangerous Goods by Road (ADR)

Tehlikeli Maddelerin Demiryoluyla Uluslararası Taşınmasına İlişkin Yönetmelik (RID)
Regulation concerning the International Carriage of Dangerous Goods by Rail (RID)

Tehlikeli Maddelerin Yurtiçi Suyolları Üzerinden Taşınmasına İlişkin Avrupa Anlaşması (ADN)
European Agreement concerning the International Carriage of Dangerous Goods by Inland Navigation (ADN)

Tehlikeli Maddelerin Denizyoluyla Uluslararası Taşınmasına İlişkin Yönetmelik (IMDG-Kodu)
International Maritime Dangerous Goods Code (IMDG-Code)

Uluslararası Sivil Havacılık Örgütü -
Tehlikeli Maddelerin Hava Yoluyla Güvenli Taşınmasına İlişkin Teknik Talimatlar (ICAO-TI)
Technical Instructions for the Safe Transport of Dangerous Goods by Air (ICAO-TI)

International Air Transport Association -
Tehlikeli Madde Taşıma Yönetmeliği (IATA-DGR)
Dangerous Goods Regulations (IATA-DGR)

Tel: +49 (0)7151-1707-0
Fax: +49 (0)7151-1707-110
Amtsgericht Stuttgart HRA 728253
Persönlich haftender Gesellschafter: Föll GmbH
Amtsgericht Stuttgart HRB260321

E-Mail: info@rems.de
Internet: www.rems.de
Geschäftsführer:
Dr.-Ing. Christoph Föll-Laubengeiger
Dr.-Ing. Rudolf Wagner

16. 01.Nisan.2016 tarihi itibarıyla değiştirilen şekliyle IATA Tehlike Madde Talimatları uyarınca

Yük Durumu:

State of Charge in Accordance with the Changes to the IATA Dangerous Goods Regulations Effective from 1 April 2016

01.Nisan.2016 tarihinde yürürlüğe giren IATA Tehlikeli Madde Yönetmelikleri uyarınca, REMS GmbH ve Co. KG. şirketi tarafından, 01.Nisan.2016 tarihinden bu yana üretilen Lityum İyon akülerinin (UN 3480) kendi dolun kapasitelerinin en fazla %30'u kadar şarj edilmiş durumda (SoC) sevk edilmek üzere nakliye bölümüne teslim edildikleri, teyit edilmektedir.

In accordance with the changes to the IATA Dangerous Goods Regulations, which entered into force on 1 April 2016, REMS GmbH & Co KG confirms that all lithium-ion batteries (UN 3480) manufactured from 1 April 2016 will be handed over for transportation with their state of charge (SoC) not exceeding 30% of their design capacity.

17. Diğer bilgiler

Other information

Bilgimiz çerçevesinde ve iyi niyetimiz doğrultusunda bilgileri derlediğimize dair teminata bulunuyoruz. Bilgilerin doğru, güvenilir ve eksiksiz olduğuna ilişkin REMS GmbH & Co KG hiç bir sorumluluğu kabul etmemektedir! Bilgilerin uygunluğunu, eksiksizliğini ve aktüalitesini kendi kullanım amacı doğrultusunda tetkik etmek kullanıcının sorumluluğundadır.

This information has been meticulously compiled to the best of our knowledge and belief. REMS GmbH & Co KG excludes any warranty whatsoever for the accuracy, reliability or completeness of the information provided herein! It is the user's responsibility to check the information's suitability, completeness and timeliness with regard to the relevant purpose of use.

Tel: +49 (0)7151-1707-0

Fax: +49 (0)7151-1707-110

Amtsgericht Stuttgart HRA 728253

Persönlich haftender Gesellschafter: Föll GmbH

Amtsgericht Stuttgart HRB260321

E-Mail: info@rems.de

Internet: www.rems.de

Geschäftsführer:

Dr.-Ing. Christoph Föll-Laubengeiger

Dr.-Ing. Rudolf Wagner

ИНФОРМАЦИОНЕН ЛИСТ ЗА БЕЗОПАСНОСТ НА ПРОДУКТ MATERIAL SAFETY DATA SHEET

Литиево йонна манганова оксидна батерия
Lithium ion manganese oxide battery

№ на артикул: 571555 R14H / Item no.: 571555 R14H

Според Регламент (ЕО) № 1907/2006 (REACH) информационен лист за безопасност на продукти се издава само за вещества и препарати. Батериите не са засегнати от изискванията на този регламент.

According to Regulation (EC) No. 1907/2006 (REACH), a safety data sheet must be provided solely for substances and preparations. Batteries are not affected by the requirements of this Regulation.

1. Идентификация на веществата и на производителя

Product Designation and Name of the Manufacturer

Идентификация: <i>Identification:</i>	Категория на продукта: <i>Product category</i>	Литиево йонна батерия <i>Lithium-ion battery</i>
	Наименование на модела: <i>Model name</i>	4S2P
	Номинално напрежени: <i>Nominal voltage</i>	14.4V
	Номинален капацитет: <i>Nominal capacity</i>	5.0Ah
	Номинална енергия: <i>Nominal energy</i>	72Wh
	Химична система: <i>Chemical system</i>	Литиево-манганов оксид / Графит <i>Lithium manganese oxide / Graphite</i>
	Презареждаща се: <i>Rechargeable</i>	Да <i>Yes</i>

Производител: <i>Manufacturer</i>	Наименование и адрес: <i>Name and address</i>	REMS GmbH & Co KG Stuttgarter Straße 83 D-71332 Waiblingen
	Телефон / <i>phone:</i>	+49 (0) 7151/ 1707-0
	Телефакс / <i>fax:</i>	+49 (0) 7151/ 1707-110
	Е-поща / <i>e-mail:</i>	info@rems.de

Tel: +49 (0)7151-1707-0

Fax: +49 (0)7151-1707-110

Amtsgericht Stuttgart HRA 728253

Persönlich haftender Gesellschafter: Föll GmbH

Amtsgericht Stuttgart HRB260321

E-Mail: info@rems.de

Internet: www.rems.de

Geschäftsführer:

Dr.-Ing. Christoph Föll-Laubengeiger

Dr.-Ing. Rudolf Wagner

2. Идентификация на опасностите

Possible Hazards

Класификация: Тази литиево йонна презареждаща се батерия има номинална енергия > 100 Wh. Съществуват специални условия в различните наредби за транспортиране.

Classification: *This lithium-ion battery has a nominal energy of > 100Wh, which is why it is subject to certain special provisions under the hazardous substances law.*

Опасности: При неправилно боравене литиево-йонните батерии могат да създадат риск от пожар, експлозия или химично изгаряне. Не причинявайте късо съединение, не пробивайте, изгаряйте, смачквайте, потапяйте, разреждайте принудително или излагайте на температури над декларирания работен температурен диапазон на продукта. Прочетете инструкциите внимателно. При нормални условия на употреба химикалите и металите се запазват в запечатан контейнер и не са изложени на външни условия. Съществува риск от експлозия само в случай на неправилна употреба (механична, термална, електрическа), която води до активиране на защитните клапани и/или разкъсване на обвивката на батерията. В зависимост от обстоятелствата може да последва изтичане на електролит, реакция на електродния материал с влага/вода или изпаряване/пожар/експлозия на батерията.

Hazards: *When handled improperly, lithium-ion batteries may explode, or cause fire or chemical burns. Batteries must not be short-circuited, punctured, thrown into fire, crushed, immersed in water, forcibly discharged or exposed to temperatures exceeding the product's specified operating range. Please read the operating instructions thoroughly. The escape of and contact with any hazardous and toxic substances is not possible under normal conditions of use. A risk of exposure only exists in case of improper (mechanical, thermal, electrical) use which leads to the activation of safety valves and/or the rupture of the battery housing. Depending on the surrounding circumstances, the following might occur: electrolyte leakage, reaction of the electrode materials with moisture/water or battery venting/fire/explosion.*

Токсичност: Ако батерията изгори, изпаренията могат да причинят раздразнение на кожата, очите и дихателните пътища.

Toxicity: *If a battery burns, smoke or vapors are generated. These may cause eye, skin and respiratory tract irritations.*

Tel: +49 (0)7151-1707-0

Fax: +49 (0)7151-1707-110

Amtsgericht Stuttgart HRA 728253

Persönlich haftender Gesellschafter: Föll GmbH

Amtsgericht Stuttgart HRB260321

E-Mail: info@rems.de

Internet: www.rems.de

Geschäftsführer:

Dr.-Ing. Christoph Föll-Laubengeiger

Dr.-Ing. Rudolf Wagner

3. Състав и информация за съставките

Composition and Information About the Individual Components

Батерията съдържа следните материали:

The following components are contained in the sealed cell.

Дял	Наименование на материала	Диапазон на концентрация (wt %)	CAS номер
Положителен електрод	Литиев оксид на преходен метал Li[M]m[O]n	20~60	12190-79-3 12057-17-9 182442-95-1
Основа на положителния електрод	Алуминий	1~10	7429-90-5
Отрицателен електрод	Въглерод	10~30	7440-44-0
Основа на отрицателния електрод	Мед	1~15	7440-44-0
Електролит	Органичният електролит принципно съдържа естер карбонат	5~25	Поверителен
Външна обвивка	Алуминий, желязо, алуминиево ламинирана пластмаса	1~30	7429-90-5; 7439-89-6

Component	Material name	Concentration range (wt %)	CAS number
Positive electrode	Lithium transition metal oxidate Li[M]m[O]n	20~60	12190-79-3 12057-17-9 182442-95-1
Positive electrode's base	Aluminum	1~10	7429-90-5
Negative electrode	Carbon	10~30	7429-90-5
Negative electrode's base	Copper	1~15	7440-44-0
Electrolyte	Organic electrolyte principally involves ester carbo- nate	5~25	Confidential
Outer case	Aluminum, iron, aluminum laminated plastic	1~30	7429-90-5; 7439-89-6

Tel: +49 (0)7151-1707-0

Fax: +49 (0)7151-1707-110

Amtsgericht Stuttgart HRA 728253

Persönlich haftender Gesellschafter: Föll GmbH

Amtsgericht Stuttgart HRB260321

E-Mail: info@rems.de

Internet: www.rems.de

Geschäftsführer:

Dr.-Ing. Christoph Föll-Laubengeiger

Dr.-Ing. Rudolf Wagner

4. Мерки при оказване на първа помощ

First Aid Measures

Химикалите се съдържат в запечатани контейнери. При нормални условия на употреба съществува риск от експлозия само ако батерията бъде подложена на механична злоупотреба.

The chemicals are contained in a sealed housing so that they cannot escape during normal use.

Leakage may only be caused as a result of mechanical damage to the housing.

В случай на изтичане на химикал следвайте следните инструкции:

If chemicals do leak, the following must be observed

Вдишване: Съдържанието на отворената батерия може да причини дихателни затруднения. Осигурете свеж въздух и повикайте лекар.

Inhalation: *Escaping gases may cause respiratory tract irritation. Immediately ventilate or leave the room to get into fresh air. In more serious cases, call a doctor immediately.*

Контакт с кожата: Съдържанието на отворената батерия може да причини кожно раздразнение. Измийте кожата със сапун и вода.

Skin contact: *Skin irritations may occur. Thoroughly wash the skin with soap and water.*

Контакт с очите: Съдържанието на отворената батерия може да причини раздразнение на очите. Незабавно измийте очите щателно с вода за 15 минути и потърсете медицинска помощ.

Eye contact: *Eye irritations may occur. Immediately and thoroughly rinse the eyes with water for 15 minutes then seek medical assistance.*

5. Мерки при пожарогасене

Fire Fighting Measures

В случай на пожар: Използвайте само пожарогасители със сухи химикали.

In case of fire: *Only use Class D (dry powder) fire extinguishers.*

Внимание: Преди да започнете да гасите пожара, се уверете, че сте от наветрената страна на огъня. Така няма да вдишате токсични изпарения.

Caution: *Before you start extinguishing the fire, be sure to go to the side of the fire from which the wind is coming. In this way, you will not inhale any toxic vapours.*

Tel: +49 (0)7151-1707-0

Fax: +49 (0)7151-1707-110

Amtsgericht Stuttgart HRA 728253

Persönlich haftender Gesellschafter: Föll GmbH

Amtsgericht Stuttgart HRB260321

E-Mail: info@rems.de

Internet: www.rems.de

Geschäftsführer:

Dr.-Ing. Christoph Föll-Laubengeiger

Dr.-Ing. Rudolf Wagner

6. Мерки при инцидентно изтичане на течност





Measures to Be Implemented in Case of Accidental Leakage

Избършете изтеклата електролитна течност с попиваща кърпа.

Leaked electrolyte fluid should be wiped up with an absorbent cloth.

Ако има голямо количество изтекъл електролит, трябва да носите:

Personal protective equipment should be worn in case of larger leakages:

-  **защитно облекло**
protective clothing
-  **противогазова маска за органични газове**
gas mask for protection against organic gases
-  **защитни очила**
safety goggles
-  **ръкавици**
protective gloves

7. Боравене и съхранение

Handling and Storage

- Боравене:** Не отваряйте батерията. Не смачквайте, разглобявайте, изпускате или запоявайте.
Handling: *Neither open, crush nor disassemble the battery, nor let it drop from a great height nor solder anything onto it.*
- Зареждане:** Зареждайте в температурните граници от 0°C до +45°C.
Зареждайте само със специално предназначено зарядно устройство за тази батерия.
Charging: *The charging temperature must be between +32 °F and +113 °F.*
Only use the charger designated for this battery.
- Разреждане:** Разреждайте в температурните граници от -20°C до +60°C.
Discharging: *The battery may only be discharged at temperatures from -4 °F to +140 °F.*
- Внимание:** Неправилното боравене може да причини пожар или експлозия!
Caution: *Improper handling may cause fire or explosion!*
- Съхранение:** Температура: от -20 °C до +40 °C за по-малко от 3 месеца
Storage: *Temperature: -4 °F to +104°F for less than 3 months*
Диапазон на влажността: 0 % до 80 %
Humidity range: 0 % to 80 %
Добре проветрена област. / *Store in a well-ventilated place.*
Късото съединение може да причини изгаряне. / *Short circuits may cause fires.*
Не съхранявайте с метални предмети. / *Do not store along with other metal objects.*

Tel: +49 (0)7151-1707-0

Fax: +49 (0)7151-1707-110

Amtsgericht Stuttgart HRA 728253

Persönlich haftender Gesellschafter: Föll GmbH

Amtsgericht Stuttgart HRB260321

E-Mail: info@rems.de

Internet: www.rems.de

Geschäftsführer:

Dr.-Ing. Christoph Föll-Laubengeiger

Dr.-Ing. Rudolf Wagner

8. Контролиране на излагането и лична защита

Monitoring of the Stored Goods and Personal Protective Equipment

Трябва да се спазват съветите, дадени в точка 7. Следете температурата на съхранение винаги да е в рамките на посочените граници. Осигурете също добро проветряване и влажност в рамките на посочените граници. При нормална употреба не се изисква защитно оборудване.

Observe the information stated in Section 7. Continuously monitor the storage temperature so as to ensure that it is within the specified limits. Apart from that, it is required to ensure good ventilation and that the humidity does not exceed the specified limits. No protective equipment is required during normal handling.

9. Физични и химични свойства

Physical and Chemical Properties

Външен вид: 8 клетки в обвивка
Appearance: Housing with 8 cells

Тегло: 520 g
Weight: 520 g

Химични свойства: вижте точка 3
Chemical properties: see Section 3

10. Стабилност и реакция

Stability and Reactivity

По време на съхранение в продължение на 12 месеца капацитетът ще бъде намален и експлоатационният период на батерията ще се съкрати. Ако в какъвто и да е случай или обстоятелство възникне теч на електролит, пластмасовата обвивка може да се повреди.

Storage periods of more than 12 months will decrease the battery's capacity and expected lifespan. Electrolyte leakages may damage the housing on the inside.

11. Токсикологична информация

Toxicological Information

При нормална употреба няма да възникне теч и следователно няма да има контакт с токсичните съставки на батерията.

The escape of and contact with any hazardous and toxic substances is not possible under normal conditions of use.

Tel: +49 (0)7151-1707-0

Fax: +49 (0)7151-1707-110

Amtsgericht Stuttgart HRA 728253

Persönlich haftender Gesellschafter: Föll GmbH

Amtsgericht Stuttgart HRB260321

E-Mail: info@rems.de

Internet: www.rems.de

Geschäftsführer:

Dr.-Ing. Christoph Föll-Laubengeiger

Dr.-Ing. Rudolf Wagner

12. Екологична информация

Environment-Related Information

При нормална употреба на батерията не възниква замърсяване на околната среда. Въпреки това, батерията съдържа химикали, които могат да застрашат околната среда. При изхвърляне на използвани батерии винаги следвайте инструкциите, описани в точка 13.

Provided that the battery is handled properly, environmental pollution does not occur. After use, however, the battery must be disposed of separately as it contains hazardous chemicals. See Section 13.

13. Съображения при изхвърляне

Disposal Instructions

Батерията е опасен отпадък.

Не се допуска изхвърляне на батерията с битовата смет.

Ако батерията е неизползваема, изхвърлете я според приложимите наредби за рециклиране.

Batteries are classified as hazardous waste.

The battery may only be disposed of by returning it to an authorized collection point.

It is prohibited to dispose of the battery with normal household waste.

14. Информация за транспортиране

Transportation information

Общи разяснения

General explanation

Съществуват приложими ограничителни разпоредби за превоза на тези товари по въздух, пътни мрежи, железопътни мрежи и вода. По-долу можете да намерите справки за тези наредби. Тъй като законодателството подлежи на чести промени, превозвачът следва да гарантира, че всички товари се транспортират според законодателството, валидно и приложимо по време на превоза. Ако е необходимо, можете да се свържете с производителя за помощ по тези въпроси.

Restrictive regulations are applicable to the product's transport by air, road, rail or sea. Below you will find references to these regulations. As these laws are subject to frequent changes, the transport company shall ensure that the products are transported according to the regulations applicable at the time of shipment. Please contact the manufacturer of the products if you need any assistance in this matter.

Транспортиране на батерията съгласно насоки UN 3480/3481 (1).

Трябва да бъдат приложени правилата за батерии с номинален капацитет ≤ 100 Wh.

Transportation of the battery according to Directive UN 3480/3481 (1).

The regulations for batteries with nominal energy ≤ 100 Wh have to be used.

Батерията **трябва** да е защитена срещу късо съединение.

The battery **must** be protected against short circuits.

Tel: +49 (0)7151-1707-0
Fax: +49 (0)7151-1707-110
Amtsgericht Stuttgart HRA 728253
Persönlich haftender Gesellschafter: Föll GmbH
Amtsgericht Stuttgart HRB260321

E-Mail: info@rems.de
Internet: www.rems.de
Geschäftsführer:
Dr.-Ing. Christoph Föll-Laubengeiger
Dr.-Ing. Rudolf Wagner

Транспортните наредби зависят от региона и режима на транспортиране.
The transport regulations depend on the country-specific provisions and on the type of transport.

Всяка пратка трябва да бъде обозначена със следните етикети и към нея да бъде приложена придружителна бележка, както е описано по-долу:

Each package must be marked with the following labels. Furthermore, it is required to enclose an accompanying note as stated below

Етикетиране при пътен/ железопътен транспорт и Морски транспорт
Labelling for transport by road/rail and sea



+ етикет с адрес на изпращача / получателя
+ Label stating the consignor and consignee

ADR/RID/IMDG-Code: Батерията отговаря на изискванията на Специална Разпоредба 188.
The battery meets the requirements of special provision 188.

Етикети за доставка / Само пътнически самолет CAO
Shipping label/cargo aircraft only (CAO)



+ етикет с адрес на изпращача / получателя
+ Label stating the consignor and consignee

Придружителна бележка / *Accompanying note:* UN 3480 LITHIUM-ION BATTERIES, 9, -, (E)

Специална Разпоредба 188
special provision 188

ICAO-TI/IATA-DGR: Опаковъчни инструкции 965, раздел II или раздел IB
Packing instruction 965, Part II or Part IB

Tel: +49 (0)7151-1707-0

Fax: +49 (0)7151-1707-110

Amtsgericht Stuttgart HRA 728253

Persönlich haftender Gesellschafter: Föll GmbH

Amtsgericht Stuttgart HRB260321

E-Mail: info@rems.de

Internet: www.rems.de

Geschäftsführer:

Dr.-Ing. Christoph Föll-Laubengeiger

Dr.-Ing. Rudolf Wagner

15. Правила и разпоредби

Provisions and Regulations

Позовавания на разпоредби относно превоза на опасни товари:

References to provisions concerning the transport of hazardous goods:

Закон за превоз на опасни товари (GGBefG)

Transportation of Dangerous Goods Act (GGBefG)

Наредба за превоз на опасни товари по шосе, железопътни линии и вътрешни водни пътища (GGVSEB)

Ordinance on the Transport of Dangerous Goods by Road, Rail and Inland Waterways (GGVSEB)

Наредба за превоз на опасни товари по море (GGVSee)

Ordinance on the Transport of Dangerous Goods by Sea (GGVSee)

Закон за въздухоплаването (LuftVG), Наредба за издаване на лиценз на летателни средства (LuftVZO)

Air Traffic Act (LuftVG), Air Traffic Licensing Order (LuftVZO)

Европейска спогодба за международен превоз на опасни товари по шосе (ADR)

European Agreement concerning the International Carriage of Dangerous Goods by Road (ADR)

Правилник за международен железопътен превоз на опасни товари (RID)

Regulation concerning the International Carriage of Dangerous Goods by Rail (RID)

Европейско споразумение за международен превоз на опасни товари по вътрешни водни пътища (ADN)

European Agreement concerning the International Carriage of Dangerous Goods by Inland Navigation (ADN)

Международен кодекс за превоз на опасни товари по море (IMDG-Code)

International Maritime Dangerous Goods Code (IMDG-Code)

International Civil Aviation Organization –

Технически инструкции за безопасен превоз на опасни товари по въздух (ICAO-TI)

Technical Instructions for the Safe Transport of Dangerous Goods by Air (ICAO-TI)

International Air Transport Association –

Правила за превоз на опасни товари (IATA-DGR)

Dangerous Goods Regulations (IATA-DGR)

Tel: +49 (0)7151-1707-0
Fax: +49 (0)7151-1707-110
Amtsgericht Stuttgart HRA 728253
Persönlich haftender Gesellschafter: Föll GmbH
Amtsgericht Stuttgart HRB260321

E-Mail: info@rems.de
Internet: www.rems.de
Geschäftsführer:
Dr.-Ing. Christoph Föll-Laubengeiger
Dr.-Ing. Rudolf Wagner

**16. Степен на зареждане в съответствие с промени в нормативните изисквания на
Международната асоциация за въздушен транспорт (IATA) в сила от 1 април 2016 г.**

State of Charge in Accordance with the Changes to the IATA Dangerous Goods Regulations Effective from 1 April 2016

В съответствие с промените в нормативните изисквания за опасни товари на IATA в сила от 1 април 2016 г. REMS GmbH & Co KG потвърждава, че от 1 април 2016 всички литиево-йонни батерии, които са произведени, се изпращат единствено със степен на зареждане, която не превишава 30% от техния проектиран капацитет.

In accordance with the changes to the IATA Dangerous Goods Regulations, which entered into force on 1 April 2016, REMS GmbH & Co KG confirms that all lithium-ion batteries (UN 3480) manufactured from 1 April 2016 will be handed over for transportation with their state of charge (SoC) not exceeding 30% of their design capacity

17. Друга информация

Other information

Тази документация е прецизно съставена според нашите сведения и убеждения. Въпреки това, REMS GmbH & Co KG изключва всякакви гаранции за точността, надеждността или целостта на съдържащата се информация. Потребителят носи отговорност за преценката дали тази информация е подходяща, изчерпателна и значима за всяка конкретна цел.

This information has been meticulously compiled to the best of our knowledge and belief. REMS GmbH & Co KG excludes any warranty whatsoever for the accuracy, reliability or completeness of the information provided herein! It is the user's responsibility to check the information's suitability, completeness and timeliness with regard to the relevant purpose of use.