

## SAFETY DATA SHEET

Issue: 2021-A

Doc No.: 2621040085

Issue Date: 2021-09-27

### 1 Product & Company Identification

#### | Product Identification

Chinese Name	可充式锂离子电池组
English Name	Rechargeable Li-ion battery pack
Proper Shipping Name	Rechargeable Li-ion battery pack
Product Description	Rechargeable Li-ion battery
Poweramp Model Name	BRR-01-5200A
Poweramp PN	GB
UN No.	UN3480
Capacity	5.2Ah
Nominal voltage	14.4V
Watt-hour	74.8Wh
Equivalent lithium content	23.7g
Approximate Weight	415g

#### | Safety Data Sheet Provider Information

Manufacturer	Dongguan Poweramp Technology Limited
Address	No.1 Xinghui Road, Songshan Lake Park, Dongguan City, Guangdong Province
Postcodes	523808
Telephone	0769 38868888
Fax	0769 38868888
E-mail Address	EHS-SafetyOl(2tPoweramptech.com

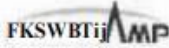
#### | Emergency call

Emergency call	0769-38868888
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### 2 Hazardous Identification

As a whole, the battery is not dangerous in the correct use.	
Explosive risk	This article does not belong to the explosion dangerous goods
Flammable risk	This article does not belong to the flammable material

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Oxidation risk	This article does not belong to the oxidation of dangerous goods
Toxic risk	This article does not belong to the toxic dangerous goods
Radioactive risk	This article does not belong to the radiation of dangerous goods
Mordant risk	This article does not belong to the corrosion of dangerous goods
other risk	This article is Lithium-polymer battery, Watt hour rate 0.16Wh, which belong to the miscellaneous dangerous goods, as is described in IMDG CODE and IATA DGR.

### 3 Composition /Information on Ingredients

**Important note:** The battery should not be opened or burned. Exposure to the ingredients contained within or their combustion products could be harmful.

Component	CAS No.	EC No.	%/wt.
Cobalt lithium manganese nickel dioxide	182442-95-1	695-690-9	5-40
Ethyl propionate	105-37-3	203-291-4	15-40
Copper foil	7440-50-8	231-159-6	10-30
Aluminum foil	7429-90-5	231-072-3	10-30
Graphite	7782-42-5	231-955-3	7-25
Ethylene Carbonate	96-49-1	202-510-0	1-15
Propylene Carbonate	108-32-7	203-572-1	1-15
Lithium Hexafluorophosphate(1-)	21324-40-3	244-334-7	1-15
Separator	9002-88-4	618-339-3	0-5

### 4 First Aid Measures

#### | First Aid Measures

Under normal conditions of use, the battery is hermetically sealed.

<b>Eye Contact</b>	The ingredients in the battery can cause severe allergies and chemical burns. Open the upper and lower eyelids immediately and rinse the eyes with water for more than 15 minutes until no chemical remains. Then seek medical attention immediately.
<b>Skin Contact</b>	The ingredients in the battery may cause skin irritation or chemical burns. Remove contaminated clothing and wash skin with soap and water. Seek medical attention if chemical burns or irritation persists.
<b>Ingestion</b>	Ingesting the battery is harmful. The composition of the battery can cause severe chemical burns in the mouth, esophagus, and gastrointestinal tract. Do not induce vomiting or food or drink if you ingest the battery or disassemble the battery. Seek

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	medical attention immediately.
<b>Inhalation</b>	Ingredients in the battery may cause respiratory allergies, and inhalation of vapor may cause upper respiratory tract and lung allergies. Breathe fresh air and seek medical attention immediately.

### 5 Fire Fighting Measures

#### | Extinguishing media

Suitable fire extinguishing medium	Water or water mist, sand, fire blanket, dry powder or carbon dioxide fire extinguisher
Inappropriate extinguishing medium	None

#### | Special hazards arising from this substance or mixture

1	In transportation and test engineering, risk factors such as electric box drop, extrusion, puncture, metal short circuit, liquid immersion may occur, and electric shock and fire risk may occur;
2	If in a confined space, there may be a risk of gas explosion.
3	Liquids leaking from accidents, including improper handling of fire water, pose a risk of environmental pollution.

#### | Material prepare & training

##### Material prepare

1	Water mist fire extinguisher: use 1 9-liter water mist fire extinguisher or 2 6-liter water mist fire extinguishers per 500KWH, which can extinguish ABCE fire (solid, non-flammable liquid, gas, electrical fire under 36KV). Or carry electric or manual sprayers as water mist extinguishers. Suspension type water - based fire extinguisher can be hung above the two cargoes.
2	Waterproof supplies: raincoat, rain boots, rubber gloves; Plastic wrap. Rags.
3	PPE: mask, high temperature gloves, safety glasses, half mask.
4	Smoke exhaust tools: every 20 meters 1 wall smoke exhaust fan, or mobile smoke exhaust fan. The vehicle has ventilation holes.
5	Explosion-proof tools: keep open, such as open environment, vehicles/equipment not airtight. The test must be closed equipment, such as high temperature furnace, high and low temperature impact test instrument. Copper foil with a diameter of 200mm and a thickness of 8 microns shall be placed on the equipment as pressure relief film. Room wall every 20 meters to have a fan, fan displacement at least 5,000 cubic meters per hour.
6	Neutralizing materials: prepare 10 kg of lime powder every 500KWH to neutralize the outflow electrolyte. The electrolyte will form HF at 8% of the weight when encountering water. Neutralize with

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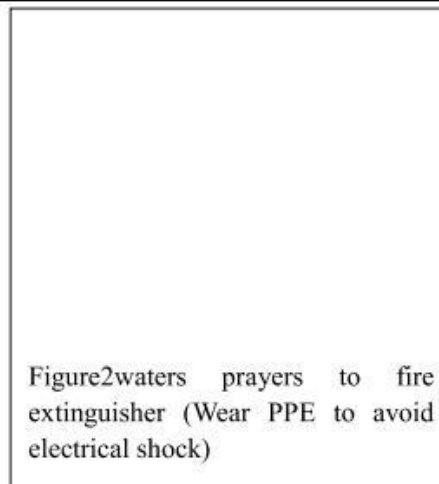
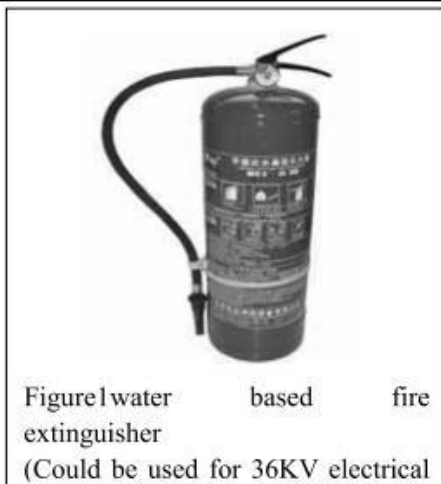
	alkaline materials.
7	Voltage measurement: multi-meter. Physically seal the current protection to avoid explosion of instrument by mistake.

### Training skills

1	Turn on or move fan to exhaust smoke
2	Put out the fire with water mist extinguisher after wearing waterproof appliance. Measure the voltage with multi-meter after the battery is dried. After the test voltage is normal, wrap the insulation with plastic wrap, and then transport it.
3	The leaked electrolyte is neutralized with lime or NaOH powder at a ratio of 8% by weight
4	Use multi-meter to test voltage, pay special attention not to use the wrong gear (to physically close the current block), to prevent instrument explosion

### Fire extinguishing precautions and protective measures

1	Alarm immediately when battery smoke or combustion is detected
2	Wear protective equipment, including respirators and masks. If water is used, PPE should include raincoats, rain boots, insulated gloves, etc.
3	Cut off the power supply
4	Using solid fire extinguishers, it is recommended to use fire extinguishers in the following order: water or mist, sand, fire blanket, dry powder, carbon dioxide fire extinguishers;
5	Exhaust smoke through fans or air circulation.
6	Drying, neutralizing. Dry by fan, if water is used, neutralize with calcium hydroxide.



## 6 Accidental Release Measures

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**On-site:** Place the material a suitable container and alert the local police.

**In water:** When the battery pack is in water, there is a risk of slight electric shock; when electrolyzing water, hydrogen will be generated. Ventilation must be maintained to prevent hydrogen accumulation and explosion in closed space. If possible, remove the batteries or modules from the water and alert the local police.

### 7 Handling & Storage

One of the most important risks in the transportation of batteries and battery power equipment is the short circuit of batteries caused by contact between the two poles of batteries with other batteries, metal objects or other conductors. Therefore, packaged batteries and battery cells must be separated in an appropriate way to prevent short circuit and electrode damage. In addition, batteries and battery cells must be packaged in strong external packaging or installed in equipment.

#### | Handling

1	Do not make excessive physical impact or vibration on batteries.
2	Short circuit should be avoided, although a few seconds of short circuit will not have a serious impact on the battery. A long short circuit can cause the battery to lose energy quickly and generate enough heat to burn the shell.
3	The sources of short circuit include the random placement of batteries in bulk containers or various metal objects used in battery assembly on equipment. In order to minimize the risk of short circuit of batteries, the protection measures of batteries should be provided when the batteries are transported and stored.
4	Batteries cannot be disassembled or deformed.
5	Do not expose the battery to water when it breaks. Operators need insulation protection when handling battery packs that exceed 50V.

#### | Storage

1	When lithium-ion batteries are stored for a long time, their charging capacity should be between 25% and 75%.
2	Store in a cool, dry and well ventilated area.
3	Excessive temperature can lead to a series of battery problems, such as leakage or rust.
4	Do not put batteries in open fire.

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### 8 Exposure Control/Personal Protection

**Important note:** The lithium battery is normally sealed and the powder has no fluidity and will not pose a danger to the contact person. It is strictly forbidden for non-professionals to dismantle batteries or cores without permission.

#### | Engineering Control

Keep away from heat sources and fires and store in dry and cool areas.

### 9 Physical/Chemical Properties

#### | Physical/Chemical Properties

Physical state	Solid
Color	Not Applicable
Odor	No Odor
Flash point	Not Applicable
Solubility in ethanol soluble	Not Applicable
Boiling Point	Not Applicable
Solubility in water:	Not Applicable
Vapor pressure	Not Applicable
Explosion limit	Not Applicable
Auto flammability	Not Applicable
Melting Point	Not Applicable
Freezing Point	Not Applicable

### 10 Stability & Reactivity

#### | Stability & Reactivity

Stability	Good stability at standard temperature.
Reactivity	None
Notice	Do not touch water or acidic substances. Products after decomposition: If the aluminum foil packaging of the battery is damaged, then do not contact strong oxidants, acidic substances and high temperature environment, and the electrolyte may volatilize to form hydrogen fluoride.

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### 11 Toxicological information

No toxic substances will be produced during routine operation and use.

### 12 Ecological information

If batteries are to be scrapped, they should be selected and disposed of by professional companies.






### 13 Disposal considerations

Batteries cannot be discarded directly into sewers or directly discharged into the environment. They should be recycled and treated in accordance with local laws and regulations.

### 14 Transport Information

#### | Air transportation

The lithium battery should accord with the International Air Transport Association (IATA DGR 62<sup>nd</sup> Edition) requirements for transportation. The battery or cell should be packed and signed as following table. (If the cell's power less than 20Wh or battery's power less than 100Wh and the package according with PI-965 SectionII, it is not classified as dangerous cargo)

UN NO.	Proper Shipping Name	Power	Package requirements	Label which need to paste
UN3480	lithium ion batteries	Cells > 20Wh Batteries > 100Wh	PI965 Section IA <b>Limit per package:</b> Pax A/C=Forbidden CAO ≤ 35 kg	Class9 lithium battery hazard label Cargo Aircraft Only label  
		Cells ≤ 20Wh Batteries ≤ 100Wh	PI965 Section IB <b>NOTE: Use "IB" if package exceeds Section II Limits</b> <b>Limit per package:</b> Pax A/C=Forbidden CAO ≤ 10 kg	Class9 lithium battery hazard label lithium battery mark Cargo Aircraft Only label   

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		Cells≤20Wh Batteries≤100Wh	PI965 Section II <b>Limit per package:</b> ≤2.7 Wh = 2.5kg; or cells > 2.7 Wh ≤ 20 Wh = 8 cells; or batteries > 2.7Wh ≤100 Wh = 2 batteries; Pax A/C=Forbidden	lithium battery mark Cargo Aircraft Only label 
UN3481	Lithium ion batteries contained in equipment	Cells>20Wh Batteries>100Wh	PI967 Section I <b>Limit per package:</b> Pax A/C ≤5 kg CAO ≤35 kg	Class9 lithium battery hazard label 
		Cells≤20Wh Batteries≤100Wh	PI967 Section II <b>Limit per package:</b> Pax A/C ≤ 5 kg CAO ≤5 kg	lithium battery mark 
UN3481	lithium ion batteries packed with equipment	Cells>20Wh Batteries>100Wh	PI966 Section I <b>Limit per package:</b> Pax A/C ≤5 kg CAO ≤35 kg	Class9 lithium battery hazard label 
		Cells≤20Wh Batteries≤100Wh	PI966 Section II <b>Limit per package:</b> Pax A/C≤5 kg CAO ≤ 5 kg	lithium battery mark 

**Notes**

1	Cells and/or batteries at a SOC of greater than 30% of their rated capacity may only be shipped with the approval of the State of Origin and the State of the Operator under the written conditions established by those authorities.
2	Packages prepared according to SectionIIof PI965 must be offered to the operator separately from other cargo and must not be loaded into a unit load device before being offered to the operator.
3	The lithium core and battery goods required by the packaging specification PI965 and PI968 II shall not be packed in the same outer package as other dangerous goods.
4	Ban lithium ion battery (UN 3480, PI965 Section IA or IB) and lithium batteries (3090, UN PI968 Section IA or IB) with category 1 explosive material (except ammunition) 1.4, 2.1 flammable gas, flammable liquid, 4.1 3 flammable solid, 5.1 class antioxidant and other dangerous goods packaging in the same package.

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5	Ensure that the equipment cannot be moved in the outer packing; If there are more than one piece of equipment in the package, it must be packed tightly together to prevent damage caused by contact with other equipment in the package.
6	Do not damage or mishandle this package. If package is damaged, batteries must be quarantined, inspected, and repacked.
7	Cells and batteries identified by the manufacturer as being defective for safety reasons, or that have been damaged, that have the potential of producing a dangerous evolution of heat, fire or short circuit are forbidden for transport.
8	Waste lithium batteries and lithium batteries being shipped for recycling or disposal are prohibited from air transport unless approved by the appropriate national authority of the State of origin and the State of the operator.
9	The lithium battery should pass the UN38.3 test, if the battery cannot pass the testing, it cannot transport, should redesign.
10	The new lithium battery operating mark allows to be 100mm x 100mm square, the minimum mark size is 100mm x70mm.

### **| Ocean shipping**

- Transportation refers to the IMDG CODE 39-18 Edition, which are managed according to UN NO 3480/3481 and packaged in the second category. Firm installation, isolation from each other, short circuit prevention, packages with more than 24 lithium cells or 12 lithium batteries: special procedures to be followed when damaged must be marked; special procedures document to be followed when damaged is available on board.
- The clause 188 of IMDG CODE 39-18 Edition required:
  - (1) The watt-hour rating of lithium ion cell is less than 20 Wh and the watt-hour rating of lithium-ion battery is less than 100 Wh is not classified as dangerous cargo, but each package shall be marked with below lithium battery mark.
  - (2) Must be packed in inner packagings that completely enclose the cell and battery (not applicable when contained in equipment), inner packagings shall be packed in strong outer packagings that in accordance with <Model Regulation>4.1.1.1、 4.1.1.2、 4.1.1.5.
  - (3) Must be protected so as to prevent short circuits, including preventing short circuits caused by contact with conductive materials in the same container.
- The clause 230 of IMDG CODE 39-18 Edition required:
  - (1) The model of each lithium ion cell and battery should meet all testing requirements under Part III, subsection 38.3 of <UN Manual of Tests and Criteria>.

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- (2) Shall be equipped with safe exhaust equipment, prevent violent rupture under normal transportation conditions.
  - (3) Shall be equipped with effective devices to prevent external short circuit.
- For more information, Call: +86-769-88989338.

### 15 Regulatory Information

Regulatory Information	See ACGIH exposure limits information as noted in Section3
US	This SDS meets/exceeds OSHA requirements.
International	This SDS conforms to European Union (UN), the International Standards Organization (ISO) and the International Labor Organization (ILO) and as documental in ANSI (American National Standards Institute) Standard Z400.1-2010.
Air transportation	According to Civil aviation industry standard MH/T1020-2018 Lithium Battery Air Transport Standard and IATA DGR and ICAO. The international transport and commodity inspection is used this standard at the moment (IMDG CODE),
Ocean shipping	According to International Maritime Dangerous Goods Code to transport and According to the requirements of UN NO 3480/3481 to management the goods.
Land transportation	According to List of Dangerous Goods (GB12268).
Avoid electrical shock	According to Standard for Electrical Safety in the Workplace, NFPA-70E.

### 16 Other Information

#### | Charging and labeling

<b>Charging</b>	The battery can be recharged repeatedly. Please use the original battery charger. Do not use modified or damaged battery chargers. When the charge exceeds the prescribed charging time, the charge can be stopped to prevent the battery from overcharging. Charging temperature should be between 0 and 45 (32° F and 113° F). There is normal heating phenomenon in the process of battery charging.
<b>Charging Voltages and Currents</b>	When the voltage exceeds the specified value, it is limited by the internal protection circuit of the battery. If the protective circuit is damaged, please stop using it. Please charge and discharge under specified voltage and current. If the battery voltage drops below the specified minimum voltage, please stop using it.

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<b>Warning</b>	Chargers provided by the equipment manufacturer shall be used and used in accordance with the operating guidelines. It is forbidden to open the battery, close to the source of fire, and short circuit, which may cause fire, explosion, leakage and personal injury.
<b>Disposal</b>	Disposal shall be carried out in accordance with the relevant regulations of the United Nations, the state and the local authorities.

**| Declaration**

The information contained here is completed without any authorization. This information is only a reference. Users should customize an independent system based on the complete and reliable information they actually collect, so as to ensure the proper use and handling of the safety and health of employees and customers.

**FICHE TECHNIQUE DE SECURITE**

**1. Identification du produit et de l'entreprise**

**| Identification du produit**

Nom chinois	可充式锂离子电池组
Nom anglais	Rechargeable Li-ion battery pack
Nom d'expédition	Batterie lithium-ion polymère Rechargeable
Type de produit	Batterie lithium-ion polymère Rechargeable
Modèle de produit Poweramp	BRR-01-5200A
Poweramp PN	GB
Numéro UN	UN3480
Capacité nominale	5.2Ah
Tension nominale	14.4V
Watt heure	74.8Wh
Teneur en lithium équivalente	23.7g
Poids approximatif	415g

**| Informations sur le fournisseur de la fiche technique de sécurité**

Nom de l'entreprise	Dongguan Poweramp Technology Limited
Adresse de l'entreprise	No.1 Xinghui Road, Songshan Lake Park, Dongguan City, Guangdong Province
Code postal	523808
Numéro de contact	0769 38868888
Fax	0769 38868888
Courriel	EHS-Safety01@Poweramptech.com

**| Appel d'urgence de l'entreprise**

Appel d'urgence de l'entreprise	0769-38868888
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**2. Aperçu des dangers**

Dans l'ensemble, la batterie n'est pas dangereuse lorsqu'elle est utilisée correctement.

Danger d'explosion	L'article n'est pas classé dans la catégorie des matières dangereuses explosives
Danger d'inflammabilité	L'article n'est pas classé dans la catégorie des matières dangereuses inflammables
Danger d'oxydation	L'article n'est pas classé dans la catégorie des matières dangereuses inflammables oxydées
Danger d'empoisonnement	L'article n'est pas classé dans la catégorie des matières dangereuses toxiques
Danger de radiation	L'article n'est pas classé dans la catégorie des matières dangereuses radioactives



Danger de corrosion	L'article n'est pas classé dans la catégorie des matières dangereuses corrosives
Autre danger	L'article est une batterie en lithium polymère avec un taux de watt-heure de 19.02Wh, et il est classé dans la neuvième catégorie des matières dangereuses prévues dans IMDG CODE et IATA DGR.

### 3. Informations sur les composants / la composition

**Suggestion importante :** Il ne faut pas démonter ou brûler la batterie, il est nuisible d'exposer les composants contenus dans la batterie ou de brûler les produits.

Composant	N°CAS.	N° EC	Pourcentage de contenu
Oxyde cobalt, lithium, manganèse et nickel	182442-95-1	695-690-9	5-40
Propanoate d'éthyle	105-37-3	203-291-4	15-40
Feuille de cuivre	7440-50-8	231-159-6	10-30
Feuille d'aluminium	7429-90-5	231-072-3	10-30
Graphite	7782-42-5	231-955-3	7-25
Carbonate d'éthylène	96-49-1	202-510-0	1-15
Carbonate de propylène	108-32-7	203-572-1	1-15
Hexafluorophosphate au lithium	21324-40-3	235-362-0	1-15
Film d'isolement	9002-88-4	618-339-3	0-5

### 4. Mesures de premiers secours

#### | Description des mesures de premiers secours

Dans des conditions normales d'utilisation, la batterie est hermétiquement fermée.

Contact des yeux	Les composants de la batterie peuvent provoquer de graves allergies et des brûlures chimiques. En cas de contact, ouvrir immédiatement les paupières supérieure et inférieure et laver les yeux avec de l'eau pendant plus de 15 minutes jusqu'à ce qu'il n'y ait plus de résidus de la substance chimique. Et puis aller immédiatement à l'hôpital.
Contact de peau	Les composants de la batterie peuvent provoquer des allergies cutanées ou des brûlures chimiques. En cas de contact, éliminer les vêtements contaminés et laver la peau avec du savon et de l'eau, en cas de brûlures chimiques ou d'irritation persistante, aller immédiatement à l'hôpital.
Ingestion	L'ingestion de la batterie est nuisible. Les composants de la batterie peuvent provoquer de graves brûlures chimiques dans la bouche, l'œsophage et le tractus gastro-intestinal, en cas d'ingestion d'une batterie ou d'une batterie démontée, ne pas faire vomir ou manger des aliments ou des boissons. Il faut aller immédiatement à l'hôpital.
Ingestion	Les composants de la batterie peuvent causer des allergies aux voies respiratoires, l'inhalation de vapeurs peut causer des allergies aux voies respiratoires supérieures et aux poumons. Il faut respirer immédiatement de l'air frais et aller à l'hôpital.

### 5. Mesures de protection contre les incendies



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### Milieu d'extinction d'incendie

Milieu d'extinction d'incendie approprié	Eau ou brouillard d'eau, sable, couverture de feu, extincteur à anhydride carbonique ou extincteur de dioxyde de carbone
Milieu d'extinction d'incendie inapproprié	Néant

### Dangers particuliers de la substance ou du mélange

1	Pendant le transport et les essais, des facteurs de danger tels que la chute de la batterie (la cellule), l'extrudage, le déchirement, le court-circuit métallique, l'immersion du liquide, etc., peuvent se produire, ainsi que des risques d'électrocution et d'incendie.
2	Dans un espace hermétique, il peut y avoir un risque d'explosion de gaz.
3	La fuite accidentelle de liquides, y compris les eaux d'incendie mal traitées, présente un risque de contamination de l'environnement.

### Préparation du matériel et formation du personnel

#### Préparation du matériel

1	Extincteur à brouillard d'eau : Un extincteur à brouillard d'eau à base d'eau de 9 litres ou deux extincteurs à brouillard d'eau à base d'eau de 6 litres pour chaque 500KWH peuvent éteindre les incendies de la catégorie ABCE (incendie de solides, de liquides non inflammables, de gaz, et incendie électrique inférieur à 36KV). Ou porter des pulvérisateurs électriques ou des pulvérisateurs manuels comme extincteurs à brouillard d'eau. Les extincteurs suspendus à base d'eau peuvent être suspendus au-dessus du véhicule et des marchandises.
2	Fournitures imperméables : manteau imperméable, bottes, gants en caoutchouc ; film de conservation à l'état frais ; torchon.
3	Fournitures de protection personnelle (PPE) : masques, gants à haute température, lunettes de sécurité, demi-masques.
4	Dispositifs d'extraction de fumée : 1 ventilateur d'extraction de fumée mural ou ventilateur mobile par 20 m. Le véhicule est équipé de trous d'aéragé.
5	Dispositifs antidéflagrants : rester ouvert, dans le cas d'un environnement ouvert, le véhicule/l'équipement n'est pas fermé hermétiquement. Pour les essais, il faut sceller les équipements, par exemple des fours à haute température, des appareils pour les essais de choc à haute et à basse température, etc. Une feuille de cuivre de 200 mm de diamètre et d'une épaisseur de 8 microns doit être placée sur l'équipement en tant que film de soulagement de la pression. Les parois de la salle doivent être équipées d'un ventilateur tous les 20 mètres, dont le débit est d'au moins 5000 m <sup>3</sup> / h.
6	Matières de neutralisation : il faut préparer 10 kg de poudre de chaux pour chaque 500KWH pour neutraliser l'électrolyte sortant, l'électrolyte rencontrant de l'eau formera du HF selon 8% du poids et sera neutralisé par des matières alcalines.
7	Mesure de la tension : multimètre. Il faut sceller physiquement le rapport de courant pour éviter que le compteur ne soit explosé par erreur.

#### Formation de compétences

1	Démarrer le ventilateur ou le ventilateur mobile pour l'extraction de fumée.
2	Eteindre le feu au moyen d'un extincteur à brouillard d'eau après le port de fournitures d'étanchéité, mesurer la tension à l'aide d'un multimètre après séchage de la batterie, une fois la tension d'essai normale, enrouler la batterie avec du film de conservation à l'état frais avant de la transporter et traiter.
3	Pour l'électrolyte fuit, répandre de la chaux ou de la poudre NaOH dans une proportion de 8% en poids pour neutraliser le liquide.
4	Capable de mesurer la tension au moyen d'un multimètre, veiller à ne pas se tromper au rapport (il faut sceller physiquement le rapport de courant), pour éviter que le compteur ne soit explosé.

### Processus d'extinction d'incendie

1	Avertir la police immédiatement en cas de fumée ou de combustion de la batterie ;
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2	Porter des fournitures de protection, y compris des appareils respiratoires, des masques et, si l'eau est utilisée, des manteaux imperméables, des caoutchoucs, des gants isolants, etc.
3	Couper le courant ;
4	Utiliser des dispositifs d'extinction de type solide, il est recommandé d'utiliser des dispositifs d'extinction dans l'ordre suivant : eau ou brouillard d'eau, sable, couverture de feu, extincteur à anhydride carbonique ou extincteur de dioxyde de carbone ;
5	Evacuer les fumées par ventilateur ou circulation d'air ;
6	Sécher, neutraliser. Sécher au moyen de ventilateur, neutraliser avec de l'hydroxyde de calcium si l'eau est utilisée.



Photo 1 Extincteur à base d'eau  
(Il peut être utilisé pour éteindre un incendie électrique inférieur de 36 KV)



Photo 2 Extincteur à brouillard d'eau  
(Porter PPE pour éviter l'électrocution)

## 6. Traitement d'urgence en cas de fuite

**Sur site** : Mettre la substance dans un conteneur approprié et avvertir la police locale

**Dans l'eau** : lorsque les batteries sont dans l'eau, il existe des risques de choc électrique faible ; l'hydrogène est produit lors de l'électrolyse de l'eau, il faut ventiler pour éviter l'agglomération et l'explosion de l'hydrogène dans des espaces hermétiques. Si possible, retirer la batterie ou le module de l'eau et avvertir la police locale.

## 7. Opération et stockage

Lors du transport des batteries et des équipements alimentés par batterie, l'un des principaux risques est le court-circuit de la batterie provoqué par le contact des pôles de la batterie avec d'autres batteries, des objets métalliques ou d'autres conducteurs. Par conséquent, il faut séparer la batterie (la cellule) emballée de la batterie de façon à éviter tout court-circuit et tout endommagement des électrodes. En outre, la batterie et la batterie (la cellule) doivent être emballées dans un emballage extérieur solide ou être montées dans l'équipement.



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### | Précautions pour l'opération

1	Il est interdit de soumettre la batterie à des chocs ou vibrations physiques excessifs.
2	Il faut éviter les courts-circuits, bien que quelques secondes de court-circuit n'entraînent pas de conséquences graves pour la batterie. Un court-circuit longtemps peut provoquer une perte d'énergie rapide de la batterie et peut produire suffisamment de chaleur pour brûler l'enveloppe.
3	Les sources de court-circuit comprennent la mauvaise mise de la batterie dans des conteneurs en vrac, ou l'utilisation de divers articles métalliques pour monter la batterie sur l'équipement. Afin de réduire au minimum le risque de court-circuit de la batterie, il convient de prévoir des mesures de protection de la batterie pendant le transport et le stockage.
4	Il ne faut pas démonter ou déformer la batterie.
5	En cas de rupture de la cellule, ne pas la mettre en contact avec l'eau. Pour manipuler des batteries de plus de 50V, les opérateurs ont besoin d'une protection isolante.

### | Précautions pour le stockage

1	Lorsque la batterie aux ions lithium est stockée sur une longue période, sa capacité de charge doit être comprise entre 25% et 75%.
2	Il faut la stocker dans une zone sèche et fraîche et bien ventilée.
3	Une température trop élevée peut provoquer une série de problèmes dans la batterie, tels que des fuites ou la rouille.
4	Il est interdit de placer la batterie sous une flamme nue.

## 8. Contrôle de contact/protection individuelle

**Suggestions importantes :** la batterie au lithium est normalement fermée hermétiquement et la poudre est immobile, ce qui ne présente pas de danger pour les personnes en contact. Il est interdit aux personnes autres que les professionnels de démonter la cellule/la batterie.

### | Méthode de contrôle technique

Tenir à l'écart des sources de chaleur et des flammes nues, et stocker dans une zone sèche et fraîche.

## 9. Caractéristiques physiques et chimiques

Etat physique	Solide
Couleur	Inapplicable
Odeur	Néant
Point de flamme	Inapplicable
Solubilité dans l'éthanol	Inapplicable
Point d'ébullition	Inapplicable



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Solubilité dans l'eau	Inapplicable
Pression de vapeur	Inapplicable
Limites d'explosivité	Inapplicable
Auto-inflammabilité	Inapplicable
Point de fusion	Inapplicable
Point de solidification	Inapplicable

### 10. Stabilité et réactivité

#### | Stabilité et réactivité

Stabilité	La stabilité est bonne à la température standard.
Réactivité	Néant
Attentions	Il ne faut pas entrer en contact avec l'eau ou les substances acides. Produits de décomposition : Si l'emballage de la batterie en feuille d'aluminium est cassé, il ne faut pas entrer en contact avec des oxydants forts, des substances acides et des températures élevées, et l'électrolyte peut se volatiliser pour former du fluorure d'hydrogène.

### 11. Données toxicologiques

Aucune substance toxique ne peut se produire lors de la manipulation et de l'utilisation de routine.

### 12. Données écologiques

Si la batterie doit être mise au rebut, elle doit être sélectionnée et éliminée par des sociétés spécialisées.


### 13. Elimination de rebut

Il ne faut pas rejeter la batterie directement dans les égouts ou dans l'environnement, elle doit être recyclée et traitée conformément aux lois et règlements locaux.

### 14. Information sur le transport

#### | Exigences en matière de transport aérien

Les batteries cellules ou batteries aux ions lithium doivent être transportées conformément aux exigences pertinentes de la 62e édition de IATA DGR. Conformément aux dispositions de IATA DGR relatives aux matières dangereuses, les batteries cellules ou batteries aux ions lithium sont emballées et étiquetées en fonction des exigences du tableau ci-dessous (Si la batteries cellule est inférieure à 20Wh, la batterie est inférieure à 100Wh et l'emballage est rempli aux exigences de la deuxième partie de PI-965, elle n'est pas classée comme dangereuse).

Numéro UN	Produit transporté	Puissance	Exigences en matière d'emballage	Étiquette à apposer
UN3480	Batterie aux ions lithium	La cellule >20Wh, la batterie >100Wh	PI965 Section IA Quantité limitée par emballage : Embargo sur les avions de passagers Tous les avions de cargaison ≤ 35kg	Étiquette de danger de la catégorie 9 –batteries au lithium Étiquette de avions de cargaison uniquement  
		La cellule ≤20Wh, la batterie ≤100Wh	PI965 Section IB Utiliser IB lorsque les emballages dépassent les limites de la Section II Quantité limitée par emballage : Embargo sur les avions de passagers Tous les avions de cargaison ≤ 10kg	Étiquette de danger de la catégorie 9 –batteries au lithium Étiquette de batterie au lithium Étiquette de avions de cargaison uniquement   
		La cellule ≤20Wh, la batterie ≤100Wh	PI965 Section II Quantité limitée par emballage : ≤2.7Wh=2.5kg ou La cellule > 2,7Wh et ≤20Wh=8 cellules ou ≤100Wh=2 batteries Embargo sur les avions de passagers	Étiquette de batterie au lithium Étiquette de avions de cargaison uniquement  
UN3481	La batterie aux ions lithium est montée dans l'équipement	La cellule >20Wh, la batterie >100Wh	PI967 Section I Quantité limitée par emballage : Les avions de cargaison ≤ 5kg Tous les avions de cargaison ≤ 35kg	Étiquette de danger de la catégorie 9 –batteries au lithium 
		La cellule ≤20Wh, la batterie ≤100Wh	PI967 Section II Quantité limitée par emballage : Les avions de cargaison ≤ 5kg Tous les avions de cargaison ≤ 5kg	Étiquette de batterie au lithium 
UN3481	La batterie aux ions lithium est emballée avec l'équipement	La cellule >20Wh, la batterie >100Wh	PI966 Section I Quantité limitée par emballage : Les avions de cargaison ≤ 5kg Tous les avions de cargaison ≤ 35kg	Étiquette de danger de la catégorie 9 –batteries au lithium 
		La cellule ≤20Wh, la batterie ≤100Wh	PI966 Section II Quantité limitée par emballage : Les avions de cargaison ≤ 5kg Tous les avions de cargaison ≤ 5kg	Étiquette de batterie au lithium 



**| Précautions**

1	Si la capacité maximale en charge de la batterie (cellule) ou de la batterie est supérieure à 30% de la capacité maximale en charge, l'autorisation des autorités compétentes du pays d'origine et de l'opérateur est requise.
2	Les emballages conformes à la section II de PI965 doivent être emballés séparément et non mélangés à d'autres marchandises avant d'être mis à la disposition de l'opérateur.
3	Les cellules et les batteries au lithium conformes aux exigences en matière d'emballage de PI965 ne doivent pas être emballées dans le même emballage extérieur que d'autres marchandises dangereuses.
4	Il est interdit d'emballer les batteries aux ions lithium (UN3480, PI965 Section IA or IB) avec les marchandises dangereuses, y compris les substances explosives de catégorie 1 (sauf les munitions de catégorie 1.4), des gaz inflammables de catégorie 2.1, des liquides inflammables de catégorie 3, des solides inflammables de catégorie 4.1 et des agents oxydants de catégorie 5.1, dans le même emballage extérieur.
5	Il faut assurer que l'équipement ne peut pas se déplacer dans l'emballage extérieur ; en cas de plusieurs équipements dedans, ces équipements doivent être fermement emballé ensemble, afin d'éviter les dommages causés par le contact avec d'autres équipements dans l'emballage.
6	Il ne faut pas endommager ou mal traiter les cellules, si les cellules sont endommagées, elles doivent être isolées, contrôlées et reconditionnées.
7	Il est interdit de transporter des cellules et batteries défectueuses et endommagées, identifiées par le fabricant comme étant défectueuses pour des raisons de sécurité et présentant un risque potentiel de chaleur, d'incendie ou de court-circuit.
8	Sans autorisation du service compétent du pays d'origine, il est interdit de transporter des batteries au lithium (cellules) usées et des batteries au lithium nouvelles pour le recyclage ou le traitement par voie aérienne.
9	Les batteries aux ions lithium doivent être soumises à l'essai UN38.3 ; si elles ne réussissent pas à cet essai, elles ne peuvent pas être transportées et doivent être reconçues.
10	Une nouvelle marque d'opération de la batterie au lithium est utilisée, sous forme carrée de 100×100mm, et la plus petite taille de marque est de 100×70mm.

**| Exigences en matière de transport maritime**

Le transport se réfère au *Code sur le transport maritime international pour les marchandises dangereuses* (39-18e édition), contrôle conformément aux exigences du UN NO 3480/3481, en utilisant des emballages de classe II. Le montage est solidaire et les batteries sont isolées les unes des autres pour éviter les courts-circuits, pour les emballages contenant plus de 24 batteries au lithium ou de 12 packs de batteries au lithium : il faut indiquer la procédure particulière suivie en cas de rupture ; le navire est accompagné d'un document explicatif des procédures particulières à suivre en cas de rupture.

L'article 188 du *Code sur le transport maritime international pour les marchandises dangereuses* (39-18e édition) dispose :

(1) Pour les batteries aux ions lithium, dont la valeur nominale en watt-heure ne dépasse pas 20Wh, pour les batteries aux ions lithium packs dont le rapport watt-heure ne dépasse pas 100Wh, elles ne sont pas transportées en tant que marchandises dangereuses. Cependant, le boîtier doit être marqué avec la valeur nominale en watt/heure.

(2) La batterie et la batterie d'accumulateur (à l'exception de celles installées sur l'équipement) doivent être emballés dans un conteneur intérieur pour assurer l'enveloppe complète de la cellule et de la batterie d'accumulateur. Le conteneur intérieur doit être placé dans un emballage extérieur solide répondant aux exigences des 4.1.1.1, 4.1.1.2 et 4.1.1.5 du *Modèle de règlement*.

(3) Il faut éviter le court-circuit de la batterie et de la batterie d'accumulateur, notamment le court-circuit entraîné par le contact avec des matériaux conductibles dans le même conteneur.



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L'article 230 du *Code sur le transport maritime international pour les marchandises dangereuses* (39-18e édition) dispose :

(1) Le modèle de chaque batterie ou batterie d'accumulateur doit satisfaire aux exigences des essais de la section 38.3 du *Manuel d'essais et de normes* des Nations Unies.

(2) La batterie et la batterie d'accumulateur sont équipées du dispositif d'échappement sûr, dont la conception empêche une rupture grave dans des conditions de transport normales.

(3) La batterie et la batterie d'accumulateur sont équipées du dispositif efficace pour prévenir le court-circuit externe.

Pour de plus d'informations, veuillez appeler le numéro de contact : +86-769-88989338.

### 15. Informations réglementaires

Informations réglementaires	Voir la partie III de ACGIH pour les informations relatives aux limites d'exposition.
Etats-Unis	Les informations sur les données de sécurité de la substance sont conformes aux exigences pertinentes de OSHAS.

International	Les informations sur les données de sécurité de la substance sont conformes à la Norme Z400.1-2010 de l'UE (NU), de ISO et de ILO ainsi que de ANSI des Etats-Unis.
Transport aérien	Se réfère à la norme du secteur MH/T1020-2018 <i>Norme sur le transport aérien des batteries de lithium</i> , qui est cohérente avec les exigences de IATA DGRA et ICAO. Cette norme est actuellement utilisée dans le transport international et l'inspection.
Transport maritime	Le transport se réfère au <i>Code sur le transport maritime international pour les marchandises dangereuses</i> , géré conformément aux exigences du UN NO 3480/3481.
Transport terrestre	Se réfère à la <i>Liste des marchandises dangereuses</i> (GB12268-2012).
Anti-électrocution	Se réfère à la norme NFPA-70E sur la sécurité électrique du lieu de travail.

### 16. Autres informations

#### | Autres informations

Charge	Cette batterie peut être rechargée plusieurs fois. Veuillez utiliser le chargeur de batteries d'origine. Il ne faut pas utiliser de chargeurs de batteries modifiés ou endommagés. La charge peut être arrêtée lorsque la charge dépasse la durée de charge spécifiée pour éviter une surcharge de la batterie. La température de charge est de 0°C-45°C, il y a un échauffement normal pendant la charge de la batterie.
Tension et courant de charge	Lorsque la tension dépasse une valeur spécifiée, elle est limitée par le circuit de protection interne de la batterie. Arrêt de l'utilisation en cas d'endommagement du circuit de protection. Veuillez charger et décharger à la tension et au courant spécifiés. Arrêter de l'utilisation si la tension de la batterie tombe en dessous de la tension minimale spécifiée.
Avertissement	Il faut utiliser le chargeur fourni par le fabricant de l'équipement et respecter les instructions d'utilisation. Il est interdit d'ouvrir la batterie, de l'approcher de la source

Poweramp confidentiel





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	d'inflammation, et de la court-circuiter, ce qui peut causer des incendies, des explosions, des fuites et des blessures corporelles.
Traitement	Il faut traiter conformément aux règles correspondantes des Nations Unies, nationales et locales.

**| Déclaration**

Les informations présentées ici sont établies sans aucune autorisation. Ces informations ne sont utilisées qu'à titre indicatif et les utilisateurs devraient établir leur système indépendant selon les informations complètes et fiables qu'ils ont effectivement collectées, afin de garantir une utilisation appropriée et un traitement de la sécurité et de la santé du personnel et des clients.

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File No.: DS20200221WERCs02

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

### 1.1 Product Identifier

**Name of Product:** Rechargeable Li-ion Battery Pack

### 1.2 Other means of identification

**Product Models:** BRR-2P4S-5200D

**Nominal Voltage:** 14.4V

**Nominal capacity:** 5200mAh

**Nominal Power:** 74.88Wh

**Weight:** 432g

### 1.3 Recommended use of the chemical and restriction on use

**Recommended Use:** Rechargeable Li-ion Battery

**Restriction on Use:** No information available

### 1.4 Information Of Supplier:

**Company Name:** Huizhou Desay Battery Co.,LTD

**Address:** No.15 Zone, Zhong Kai Hi\_Tech Development Zone, Huizhou, Guangdong, China

**Zip code:** 516006

**Contact person:** Li Hennyun

**Tel:** 86-752-2629634

**E-mail:** lihy\_pow@desay.com

### 1.5 Emergency Telephone

**86-0752-2629750**

## 2. Hazard(s) Identification

### 2.1 Classification

This chemical is considered hazardous by the 2012 OSHA Hazard Communication Standard (29 CFR 1910.1200).

Skin corrosion/irritation	Category 2
Serious eye damage/eye irritation	Category 1
Carcinogenicity	Category 2
Specific target organ toxicity (repeated exposure)	Category 1

### 2.2 Label elements

#### 2.2.1 Signal Word Danger

#### 2.2.2 Hazard Statements

Causes skin irritation

Causes serious eye damage

Suspected of causing cancer

Causes damage to organs through prolonged or repeated exposure

#### 2.2.3 Symbol



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This product is an article which contains a chemical substance. Safety information is given for exposure to the article as solid. Intended use of the product should not result in exposure to the chemical substance, this is a battery. In case of rupture: the above hazards exist.

## **2.3 Precautionary Statements**

### **2.3.1 Precautionary Statements – Prevention**

Obtain special instructions before use.

Do not handle until all safety precautions have been read and understood.

Use personal protective equipment as required.

Wash face, hands and any exposed skin thoroughly after handling.

Contaminated work clothing should not be allowed out of the workplace.

Keep away from flames and hot surface –no smoking.

Do not breathe dust/fume/gas/mist/vapors/spray.

Do not eat, drink or smoke when using this product.

### **2.3.2 Precautionary Statements – Response**

If exposed or connected: Get medical advice/attention.

Specific treatment (see supplemental first aid/instruction on this label).

#### **Skin**

If ON SKIN: wash with plenty of soap and water.

Take off contaminated clothing and water before reuse.

If skin irritation or rash occurs: get medical advice/attention if feel unwell.

#### **Eye**

If IN EYES: Rinse cautiously with water for several minutes, remove contact lenses, if present and easy to do, Continue rinsing. Call a POISON CENTER or doctor/physician.

#### **Inhalation**

If inhalation: if breathing is difficult, remove victim to fresh air and keep at rest in a position comfortable for breathing. If experiencing respiratory symptoms: Call a poison center or doctor/physician.

#### **Ingestion**

If swallowed: rinse mouth, do not induce vomiting, Call a poison center or doctor/physician if feel unwell.

### **2.3.3 Precautionary Statements – Storage**

Store locked up

### **2.3.4 Precautionary Statements – Disposal**

Dispose of contents/container to an approved waste disposal plant.

## **2.4 Hazards not otherwise classified (HNOC)**

Not applicable

## **2.5 Unknown Toxicity**

39% of the mixture consists of ingredient(s) of unknown toxicity.

## **2.6 Other information**

Harmful to aquatic organisms, may cause long-term adverse effects in the aquatic environment.

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## **2.7 Interactions with other chemicals**

Use of alcoholic beverages may enhance toxic effect.

## **3. Composition/ Information on Ingredients**

<b>Chemical Name</b>	<b>CAS No.</b>	<b>Weigh%</b>
Graphite	7440-44-0	19
Lithium Cobalt Oxide	12190-79-3	35
Lithium Hexafluorophosphate(1-)	21324-40-3	4
Diethyl Carbonate	105-58-8	10
Propylene Carbonate	108-32-7	5
Ethylene Carbonate	96-49-1	5
Copper	7440-50-8	11
Aluminum	7429-90-5	4
Nickel	7440-02-0	7

## **4. First Aid Measures**

### **4.1 General Advice**

First aid is upon rupture of sealed battery.

#### **4.1.1 Eye contact**

Rinse immediately with plenty of water, also under the eyelids, for at least 15 minutes. Keep eye wide open while rinsing. Remove contact lenses, if present and easy to do. Continue rinsing. Do not rub affected area. Seek immediate medical attention/advice.

#### **4.1.2 Skin Contact**

Wash off immediately with plenty of water and soap for at least 15 minutes. Remove and isolate contaminated clothing and shoes. Get medical attention if irritation develops and persists.

#### **4.1.3 Inhalation of Vented Gas**

Remove to fresh air. Get medical attention immediately if symptoms occur. If not breathing, give artificial respiration. If breathing is difficult, (trained personnel should) give oxygen.

#### **4.1.4 Ingestion**

Do NOT induce vomiting. Rinse mouth immediately and drink plenty of water. Never give anything by mouth to an unconscious person. Call a physician or poison control center immediately.

#### **4.1.5 Self-protection of the first aider**

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Ensure that medical personnel are aware of the material(s) involved. Take precaution to protect themselves and prevent spread of contamination. Avoid contact with skin, eyes or clothing. Avoid direct contact with skin. Use barrier to give mouth-to-mouth resuscitation. Use personnel protective equipment as required. Wear personnel protective clothing (see section 8).

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

Burning sensation, Itching. Rashes. Hives, Coughing.

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

### **Notes to physician**

Use of gastric lavage or emesis is contraindicated. Possible perforation of stomach or esophagus should be investigated. Do not give chemical antidotes. Asphyxia from glottal edema may occur. Marked decrease in blood pressure may occur with moist rales, frothy sputum, and high pulse pressure. May cause sensitization of susceptible persons. Treat symptomatically.

## **5. Fire – Fighting Measures**

### **5.1 Suitable Extinguishing Media**

Use extinguishing measures that are appropriate to local circumstances and the surrounding environment. Dry chemical, CO<sub>2</sub>, water spray or regular foam. Move containers from fire area if you can do it without risk.

### **5.2 Unsuitable Extinguishing Media**

CAUTION: Use of water spray when fighting fire may be inefficient.

### **5.3 Specific Hazards Arising from the chemical**

Thermal decomposition can lead to release of irritating gases and vapors. In the event of fire and/or explosion do not breathe fumes. May cause sensitization by inhalation and skin contact. Product is or contains a sensitizer.

### **Hazardous Combustion products**

Carbon oxides

### **5.4 Explosion Data**

**Sensitivity to Mechanical Impact: None.**

**Sensitivity to Static Discharge: None.**

### **5.5 Protective equipment and precautions for firefighters**

As in any fire, wear self-contained breathing apparatus pressure-demand, MSHA/IOSH (approved or equivalent) and full protective gear. Move containers from fire area if you can do it without risk.

## **6. Accidental Release Measures**

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

Avoid contact with skin, eyes or clothing. Ensure adequate ventilation. Use personal protective equipment as required. Evacuate personnel to safe areas. Keep people away from and upwind of spill/leak.

### **6.2 Environmental Precautions**

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Refer to protective measures listed in Sections 7 and 8. Prevent further leakage or spillage if safe to do so. Should not be released into the environment. Do not allow to enter into soil/subsoil. Prevent product from entering drains.

## 6.3 Methods for containment

Prevent further leakage or spillage if safe to do so. Absorb with earth, sand or other non-combustible material and transfer to containers for later disposal.

## 6.4 Methods for cleaning up

Pick up and transfer to properly labeled containers.

## 7. Handling and Storage

### 7.1 Precaution for safe handling

In case of rupture, use personal protection equipment. Avoid contact with skin, eyes or clothing. Ensure adequate ventilation. Do not breathe dust/fume/gas/mist/vapors/spray.

### 7.2 Conditions for safe storage, including any incompatibilities

#### **Storage**

Keep containers tightly closed in a dry, cool and well-ventilated place. Store locked up. Keep out of the reach of children.

#### **Incompatible products**

Strong acids. Strong oxidizing agent. Strong bases.

## 8. Exposure Controls/Personal Protection

### 8.1 Exposure Guidelines

Chemical Name	ACGIH TLV	OSHA PEL	NIOSH IDLH
Graphite 7782-42-5	TWA: 2 mg/m <sup>3</sup> respirable particulate matter all forms except graphite fibers	TWA: 15 mg/m <sup>3</sup> total dust synthetic TWA: 5 mg/m <sup>3</sup> respirable fraction synthetic (vacated) TWA: 2.5 mg/m <sup>3</sup> respirable dust natural (vacated) TWA: 10 mg/m <sup>3</sup> total dust synthetic (vacated) TWA: 5 mg/m <sup>3</sup> respirable fraction synthetic TWA: 15 mppcf natural	IDLH: 1250 mg/m <sup>3</sup> TWA: 2.5 mg/m <sup>3</sup> respirable dust
Lithium Cobalt Oxide 12190-79-3	TWA: 0.02 mg/m <sup>3</sup>	-	-

ACGIH TLV: American Conference of Governmental Industrial Hygienists-Threshold Limit Value  
OSHA PEL : Occupational Safety and Health Administration-Permissible Exposure Limits  
NIOSH IDLH Immediately Dangerous to Life or Health.



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## **Other Exposure Guidelines:**

Vacated limits revoked by the court of Appeals decision in AFL-CLO v. OSHA, 965F, 2d 962(11th Cir., 1992) See section 15 for national exposure control parameters.

## **8.2 Appropriate engineering controls**

### **Engineering Measures:**

Showers, Eyewash stations, Ventilation systems

## **8.3 Individual protection measures, such as personal protective equipment**

**Respiratory protection :**No protective equipment is needed under normal use conditions. If exposure limits are exceeded or irritation is experienced, ventilation and evacuation may be required.

**Eye /face protection:**if splashes are likely to occur: Wear safety glasses with side shields(or goggles). None required for consumer use.

**Skin protection:** Wear protective gloves and protective clothing. Long sleeved clothing. Imperious gloves.

**Hygiene Measure:** Handle in accordance with good industrial hygiene and safety practice. Do not eat, drink or smoke when using this product. Take off contaminated clothing and wash before reuse. Avoid contact with skin, eyes or clothing. Wear suitable gloves and eye/face protection. Wash hands before breaks and immediately after handling the product. For environmental protection, remove and wash all contaminated protective equipment before re-use. No information available.

## **9. Physical and Chemical Properties**

**Physical State:** Solid

**Color:** Black

**Odor:** Odorless

**Odor Threshold:** No information available

**pH:** No data available

**Melting/freezing point:** No data available

**Boiling point/boiling range:** No data available

**Flash Point:** No data available

**Evaporation Rate:** No data available

**Flammability(Solid, gas):** No data available

**Flammability Limit in Air:** No data available

**Upper flammability limit:** No data available

**Lower flammability limit:** No data available

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**Vapor pressure:** No data available

**Vapor density:** No data available

**Specific Gravity:** No data available

**Solubility:** Insoluble in water

**Partition coefficient: n-octanol/water:** No data available

**Autoignition temperature:** No data available

**Decomposition temperature:** No data available

**Kinematic viscosity:** No data available

**Dynamic viscosity:** No data available

## 10. Stability and Reactivity

**Reactivity:**

No data available

**Chemical stability:**

Stable under recommended storage conditions.

**Possibility of Hazardous Reactions:**

None under normal processing.

**Hazardous Polymerization:**

Hazardous polymerization does not occur.

**Conditions to avoid:**

Do not subject battery to mechanical shock. Keep away from open flames, high temperature.

**Incompatible materials:**

Strong acids, Strong oxidizing agents. Strong bases.

**Hazardous decomposition products:**

Carbon oxides

## 11. Toxicological Information

### 11.1 Information on likely routes of exposure

**Product information:**

Product does not present an acute toxicity hazard based on known or supplied information. In case of rupture:

**Inhalation:**

Specific test data for the substance or mixture is not available. Corrosive by inhalation (based on components). Inhalation of corrosion fumes/gases may cause coughing, choking, headache, dizziness and weakness for several hours. Pulmonary edema may occur with tightness in the chest, shortness of breath, bluish skin, decreased blood pressure and increased heart rate. Inhaled

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corrosion substances can lead to a toxic edema of the lungs. Pulmonary edema can be fatal. May cause irritation of respiratory tract.

## Eye Contact:

Specific test data for the substance or mixture is not available. Cause burns. ( based on components). Corrosion to the eyes and may cause severe damage including blindness. Cause serious eye damage. May cause irreversible damage to eyes.

## Skin Contact:

Specific test data for the substance or mixture is not available. Corrosion (based on components). Cause burns. Toxic in contact with skin. May be absorbed through the skin in harmful amounts.

## Ingestion:

Specific test data for the substance or mixture is not available. Cause burns. ( based on components). Ingestion cause burns of the upper digestive and respiratory tracts. May cause severe burning pain in the mouth and stomach with vomiting and diarrhea of dark blood. Blood pressure may decrease. Brownish or yellowish stains may be seen around the mouth. Swelling of the throat may cause shortness of breath and choking. May cause lung damage if swallowed. May be fatal if swallowed and enters airways. Ingestion may cause irritation to mucous membranes. Ingestion may cause gastrointestinal irritation, nausea, vomiting and diarrhea. May be harmful if swallowed.

## Component Information

Chemical Name	Oral LD50	Dermal LD50	Inhalation LC50
Graphite 7782-42-5	> 10000mg/kg ( Rat )	-	-
Propylene Carbonate 108-32-7	=29000mg/kg (Rat)	>20mL/kg(rabbit)	-

## 11.2 Information on toxicological effects

### Symptoms:

Erythema (skin redness). May cause redness and tearing of eyes. Itching. Rashes. Hives. Symptoms of allergic reaction may include rash, itching, swelling, trouble breathing, tingling of the hands and feet, dizziness, lightheadedness, chest pain, muscle pain, or flushing. Coughing and/or wheezing.

## 11.3 Delayed and immediate effects as well as chronic effects from short and long-term exposure

**Sensitization:** May cause sensitization of susceptible person, May cause sensitization by skin contact. May cause sensitization by inhalation.

**Mutagenic Effects:** No information available.

**Carcinogenicity:** the table below whether each agency has listed any ingredient as a carcinogen.

Chemical Name	ACGIH	IARC	NTP	OSHA
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Lithium Cobalt Oxide12190-79-3	A3	Group 2B		X
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**ACGIH** (American Conference of Governmental Industrial Hygienists)

A3- Animal Carcinogen

**IARC** (International Agency for research on Cancer)

Group 2B- Possibly Carcinogenic to humans

**NTP** (National Toxicology Program)Reasonably Anticipated- reasonably anticipated to be a human Carcinogenic.

**OSHA**(Occupational safety and Health Administration of the US Department of Labor)

X-Present

**Reproductive Toxicity:** No information available.

**STOT- single exposure:** No information available.

**STOT- repeated exposure:** Cause damage to organs through prolonged or repeated exposure. Based on classification criteria from the 2012 OSHA Hazard Communication Standard (29 CFR 1910.1200), this product has been determined to cause systemic target organ toxicity from chronic or repeated exposure. ( STOT RE )

**Chronic Toxicity:** Prolonged exposure may cause chronic effects. Repeated contact may cause allergic reactions in very susceptible persons. Contain a known or suspected carcinogen. Avoid repeated exposure. May cause adverse effects on the bone marrow and blood-forming system.May cause adverse liver effects.

**Target Organ Effects:** Respiratory system. Eyes.Skin. Gastrointestinal tract(GI). Blood. Central Nervous System(CNS). Kidney.Liver.Lungs.Nasal cavities.

**Aspiration Hazard:** No information available.

## 11.4 Numerical measures of toxicity product information

The following values are calculated based on chapter 3.1 of the GHS document.

ATE mix(oral):6513mg/kg

ATE mix(dermal): 5141mg/kg (ATE)

## 12. Ecological Information

### **Ecotoxicity :**

Chemical name	Toxicity to Aglae	Toxicity to Fish	Toxicity to Microorganisms	Daphnia Magna (Water Flea)
Propylene Carbonate 108-32-7	72h EC50: >500mg/L (Desmodesmussubspicatus)	96h LC50: >1000mg/L (Cyprinus carpio) 96h LC50: =5300mg/L (Leuciscusidus)	17h EC50: >1000mg/L	24h EC50: >5600mg/L

**Persistence and Degradability:**No information available

**Bioaccumulation:**No information available

**Other adverse effects:** No information available

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## 13. Disposal Considerations

### 13.1 Waste treatment methods

**Disposal methods:**

This material, as supplied, is not a hazardous waste according to Federal regulations (40 CFR 261). This material could become a hazardous waste if it is mixed with or otherwise comes in contact with a hazardous waste, if chemical additions are made to this material, or if the material is processed or otherwise altered. Consult 40 CFR 261 to determine whether the altered material is a hazardous waste. Consult the appropriate state, regional, or local regulations for additional requirements. Should not be released into the environment.

**Contaminated Packaging:**

Dispose of in accordance with federal, state and local regulations.

**California Hazardous Waste Codes 141**

This product contains one or more substances that are listed with the State of California as a hazardous waste.

Chemical Name	California Hazardous Waste
Lithium Cobalt Oxide 12190-79-3	Toxic

## 14. Transportation Information

The transportation of primary lithium cells and batteries is regulated by the International Civil Aviation Organization, International Air Transport Association, International Maritime Dangerous Goods Code and the US Department of Transportation. The batteries must meet the following criteria for shipment: 1. Air shipments must meet the requirements listed in Special Provision A45 of the International Air Transport Association Dangerous Goods Regulations. 2. Meet the requirements for the US Department of Transportation listed in 49 CFR 173.185. 3. The transport of primary lithium batteries is prohibited aboard passenger aircraft. Refer to the Federal Register December 15, 2004 (Hazardous Materials; Prohibited on the Transportation of Primary Lithium Batteries and Cells Aboard Passenger Aircraft; Final Rule) Lithium batteries shipped as "Lithium batteries", "Lithium batteries packed with equipment", or "Lithium batteries contained in equipment" may not be classified as "Dangerous Goods" when shipped in accordance with "PI965-967 section II of IATA-DGR" or "special provision 188 of IMO-IMDG Code"

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**DOT:** NOT REGULATED

**Proper Shipping Name:** NON REGULATED

**Emergency Response Guide Number:** 147

**Hazard Class:** N/A

**TDG:** Not regulated

**MEX:** Not regulated

**ICAO:** Not regulated

**IATA:** Not regulated

**Proper Shipping Name:** Not regulated

**Hazard Class:** Not regulated

**IMDG/IMO:** Not regulated

**Proper Shipping Name:** NON REGULATED

**Hazard Class:** N/A

**Ems No.:** F-A,S-1

**RID:** Not regulated

**ADR:** Not regulated

**AND:** Not regulated

## 15. Regulatory information

### 15.1 International Inventories

TSCA Complies

DSL All components are listed either on the DSL or NDSL.

TSCA – United State Toxic Substance Control Act Section 8(b) Inventory

DSL/NDSL – Canadian Domestic Substance List/Non-Domestic Substance List

### 15.2 US Federal Regulations

**SARA 313:** Section 313 of Title III of the superfund Amendments and Reauthorization Act of 1986(SARA). This product contains a chemical or chemicals which are subject to the reporting requirements of the Act and Title 40 of the Code of Federal Regulations, Part 372

Chemical Name	CAS No.	Weight (%)	SARA313-Threshold values(%)
Lithium Cobalt Oxide	12190-79-3	15-40	0.1

### 15.3 SARA 311/312 Hazard Categories

Acute Health Hazard No  
Chronic Health Hazard No  
Fire Hazard No  
Sudden release of pressure hazard No  
Reactive Hazard No

### 15.4 CWA (Clean Water Act)

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This product does not contain any substances regulated as pollutants pursuant to the Clean Water Act (40 CFR 122.21 and 40 CFR 122.42)

## 15.5 CERCLA

This material, as supplied, does not contain any substances regulated as hazardous substances under the Comprehensive Environmental Response Compensation and Liability Act (CERCLA) (40 CFR 302) or the Superfund Amendments and Reauthorization Act (SARA) (40 CFR 355).

There may be specific reporting requirements at the local, regional, or state level pertaining to releases of this material

## 15.6 US State Regulations

### **California Proposition 65**

This product contains the following Proposition 65 chemicals.

Chemical Name	California Proposition 65
Nickel 7440-02-0	Cancer

## U.S State Right-to-Know Regulations

Chemical Name	New Jersey	Massachusetts	Pennsylvania	Rhode Island	Illinois
Graphite 7782-42-5	x	x	x		
Lithium Cobalt Oxide 12190-79-3	x	x	x	x	x
Diethyl Carbonate 105-58-8	x	x	x	x	x

## 15.7 International Regulations

### **Mexico**

National occupational exposure limits

Chemical Name	Carcinogen Status	Exposure Limits
Graphite		Mexico: TWA= 2 mg/m <sup>3</sup>

### **Canada**

WHMIS Hazard Class

Non-controlled

## 16. Other Information

### **Disclaimer:**

The information provided in this Safety Data Sheet is correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as guidance for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used material used in combination with any other materials or in any process, unless specified in the test.

**Prepared By:** Guangzhou MCM Certification and Testing Co., Ltd.

**Issuing Date:** Feb. 06, 2020

**Revision Date:** Feb. 06, 2020

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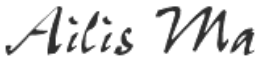

--- End of SDS ---



## Safety Data Sheets (SDSs)

Client	Sunwoda Electronic Co., Ltd.
Add. of Client	Floor 1,A,B,D District of Floor 2 and Floor 3 to 9 of Comprehensive Building, No.2 Yihe Road, Shilong Community, Shiyan Street, Bao'an District, Shenzhen City, Guangdong Province, P. R. China
Description	Rechargeable Li-ion battery pack
Model /Type	BRR-2P4S-5200S
Manufacturer	Sunwoda Electronic Co., Ltd.
Add. of Manufacturer	Floor 1,A,B,D District of Floor 2 and Floor 3 to 9 of Comprehensive Building, No.2 Yihe Road, Shilong Community, Shiyan Street, Bao'an District, Shenzhen City, Guangdong Province, P. R. China
Nominal Voltage	14.4V, 5200mAh, 74.88Wh
Date of Receipt	2020-02-25

Laboratory	Dongguan ZRLK Testing Technology Co., Ltd.
Address	Building D, No.2, Jinyuyuan Mansion, No.18, Industrial West Road, Songshan Lake High-tech Industrial Development Zone, Dongguan, Guangdong, China

Approved Signatory	Maggie.Gao	
Inspected by	Ailis.Ma	
Censored by	Lahm Peng	

## 1. IDENTIFICATION OF THE SUBSTANCE/PREPARATION AND OF THE COMPANY/UNDERTAKING

### Product Identifier

Product name: Rechargeable Li-ion battery pack

Model: BRR-2P4S-5200S

### Other means of identification

Synonyms:none

### Recommended use of the chemical and restrictions on use

Recommended Use:Used in portabl electronic equipments;

Uses advised against:

- a) Do not dismantle, open or shred secondary cells or batteries.
- b) Keep batteries out of the reach of children  
Battery usage by children should be supervised. Especially keep small batteries out of reach of small children.
- c) Seek medical advice immediately if a cell or a battery has been swallowed.
- d) Do not expose cells or batteries to heat or fire. Avoid storage in direct sunlight.
- e) Do not short-circuit a cell or a battery. Do not store cells or batteries haphazardly in a box or drawer where they may short-circuit each other or be short-circuited by other metal objects.
- f) Do not remove a cell or battery from its original packaging until required for use.
- g) Do not subject cells or batteries to mechanical shock.
- h) In the event of a cell leaking, do not allow the liquid to come in contact with the skin or eyes. If contact has been made, wash the affected area with copious amounts of water and seek medical advice.
- i) Do not use any charger other than that specifically provided for use with the equipment.
- j) Observe the plus (+) and minus (-) marks on the cell, battery and equipment and ensure correct use.
- k) Do not use any cell or battery which is not designed for use with the equipment.
- l) Do not mix cells of different manufacture, capacity, size or type within a device.
- m) Always purchase the battery recommended by the device manufacturer for the equipment.
- n) Keep cells and batteries clean and dry.
- o) Wipe the cell or battery terminals with a clean dry cloth if they become dirty.
- p) Secondary cells and batteries need to be charged before use. Always use the correct charger and refer to the manufacturer's instructions or equipment manual for proper charging instructions.
- q) Do not leave a battery on prolonged charge when not in use.
- r) After extended periods of storage, it may be necessary to charge and discharge the cells or batteries several times to obtain maximum performance.
- s) Retain the original product literature for future reference.
- t) Use the cell or battery only in the application for which it was intended.
- u) When possible, remove the battery from the equipment when not in use.
- v) Dispose of properly.

### Details of the supplier of the safety data sheet:

Supplier Name: Sunwoda Electronic Co., Ltd.

Address: Floor 1,A,B,D District of Floor 2 and Floor 3 to 9 of Comprehensive Building, No.2 Yihe Road, Shilong Community, Shiyan Street, Bao'an District, Shenzhen City, Guangdong Province, P. R. China

Telephone number of the supplier: 0086-13480986964

Fax: /

Postcode: 518000

E-mail address: lilichong@sunwoda.com

**Emergency telephone number**

**Company Emergency Phone Number:** 0086-13480986964

## 2. HAZARDS IDENTIFICATION

**Classification**

Acute toxicity - Dermal	Category 3
Serious eye damage/eye irritation	Category 2A
Carcinogenicity	Category 2
Specific target organ toxicity (repeated exposure)	Category 1

**GHS Label elements, including precautionary statements**

**Danger**

**Hazard statements**

Toxic in contact with skin

Causes serious eye irritation

Suspected of causing cancer

Causes damage to organs through prolonged or repeated exposure



**Precautionary statements-Prevention**

Obtain special instructions before use

Do not handle until all safety precautions have been read and understood

Wear protective gloves/protective clothing/eye protection/face protection

Wash face, hands and any exposed skin thoroughly after handling

Do not breathe dust/fume/gas/mist/vapors/spray

Do not eat, drink or smoke when using this product

**Precautionary Statements - Response**



If exposed or concerned: Get medical advice/attention  
Specific treatment (see supplemental first aid instructions on this label)

**Eyes**

IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing  
If eye irritation persists: Get medical advice/attention

**Skin**

IF ON SKIN: Wash with plenty of water and soap  
Call a POISON CENTER or doctor if you feel unwell  
Take off immediately all contaminated clothing and wash it before reuse

**Precautionary Statements - Storage**

Store locked up

**Precautionary Statements - Disposal**

Dispose of contents/container to an approved waste disposal plant

**Other information**

harmful if swallowed. Very toxic to aquatic life with long lasting effects.

### 3. COMPOSITION/INFORMATION ON INGREDIENTS

**Chemical characterization: Mixtures**

**Description:**

Product: Consisting of the following components.

Common Chemical Name	Concentration (%)	CAS Number
Lithium Cobalt Oxide (LiCoO <sub>2</sub> )	10	12190-79-3
Aluminum Foil	10	7429-90-5
Lithium nickel oxide (LiNiO <sub>2</sub> )	15	12031-65-1
Graphite	18	7782-42-5
Copper	10	7440-50-8
Iron	10	7439-89-6
Phosphate(1-),hexafluoro-,lithium	2.8	21324-40-3
Ethylene carbonate	5	96-49-1
Dimelene carbonate	5	616-38-6
Lithium manganese oxide (LiMn <sub>2</sub> O <sub>4</sub> )	5	12057-17-9
Nickel	1	7440-02-0



Polyethylene	5	9002-88-4
Ethyl acetate	0.8	141-78-6
Carbon black	0.8	1333-86-4
Lithium carbonate	0.8	554-13-2
1-Methyl-2-pyrrolidone	0.8	872-50-4

Note: CAS number is Chemical Abstract Service Registry Number.

N/A=Not apply.

## 4. FIRST-AID MEASURES

### First aid measures

**Eye Contact** Rinse thoroughly with plenty of water, also under the eyelids. If symptoms persist, call a physician.

**Skin Contact** Remove contaminated clothing and shoes. Wash skin with soap and water. In the case of skin irritation or allergic reactions see a physician.

**Inhalation** Move to fresh air. If symptoms persist, call a physician.

**Ingestion** Do NOT induce vomiting. Drink plenty of water. If symptoms persist, call a physician.

Most important symptoms and effects, both acute and delayed

**Swallowing** Do not induce vomiting. Get medical attention.

**Most Important Symptoms/Effects** No information available.

### Indication of any immediate medical attention and special treatment needed

Notes to Physician Treat symptomatically

## 5. FIRE-FIGHTING MEASURES

### Suitable Extinguishing Media

CO<sub>2</sub>, dry chemical powder, water spray.

Unsuitable Extinguishing Media: No information available.

### Specific Hazards Arising from the Chemical

Formation of toxic gases is possible during heating or in case of fire.

In case of fire, the following can be released:

Carbon monoxide(CO)

Carbon dioxide

Other irritating and toxic gases.

### Hazardous Combustion Products

Carbon oxides.

Explosion Data

Sensitivity to Mechanical Impact No

Sensitivity to Static Discharge No

### Protective Equipment and Precautions for Firefighters

As in any fire, wear self-contained breathing apparatus pressure-demand, MSHA/NIOSH (approved or equivalent) and full protective gear. For example: Wear self-contained respiratory protective device. Wear suitable protective clothing and eye/face protection.

**Special hazards arising from the substance or mixture:**

Battery may burst and release hazardous decomposition products when exposed to a fire situation. Lithium ion batteries contain flammable electrolyte that may vent, ignite and produce sparks when subjected to high temperature(>150°C), When damaged or abused(e.g. mechanical damage or electrical overcharging); may burn rapidly with flare-burning effect; may ignite other batteries in clothes proximity.

## 6. ACCIDENTAL RELEASE MEASURES

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

Personal Precautions Avoid contact with eyes.

Refer to section 8 for personal protective equipment. Ensure adequate ventilation. Remove all sources of ignition.

Evacuate personnel to safe areas.

**Environmental precautions**

Environmental Precautions Refer to protective measures listed in Sections 7 and 8.

Absorb with liquid-binding material (sand, diatomite, acid binders, universal binders, sawdust).

Dispose contaminated material as waste according to item 13.

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

Methods for Containment Prevent further leakage or spillage if safe to do so.

Methods for Cleaning up Use personal protective equipment. Dam up. Cover liquid spill with sand, earth or other Non combustible absorbent material. Pick up and transfer to properly labeled containers. Clean contaminated surface thoroughly.

## 7. HANDLING AND STORAGE

**Precautions for safe handling**

Handling Handle in accordance with good industrial hygiene and safety practice. Avoid contact with skin, eyes and clothing. Wear personal protective equipment.

Wash thoroughly after handling. Use this material with adequate ventilation.

The product is not explosive.

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

If the Lithium-ion Battery is subject to storage for such a long term as more than 3 months, it is recommended to recharge the Li-ion Polymer Battery periodically.

3 months: -10°C~+40°C, 45 to 85%RH

And recommended at 0°C~+35°C for long period storage.

The capacity recovery rate in the delivery state (50% capacity of fully charged) after storage is assumed to be 80% or more.

The voltage for a long time storage shall be 3.7V~4.2V range.

Do not storage Lithium-ion Battery haphazardly in a box or drawer where they may short-circuit each other or be short-circuited by other metal objects.

Keep out of reach of children.

Do not expose Li-ion Polymer Battery to heat or fire. Avoid storage in direct sunlight.  
 Do not store together with oxidizing and acidic materials.  
 Keep ignition sources away- Do not smoke.  
 Store in cool, dry and well-ventilated place.

**Incompatible Products** None known.

## 8. EXPOSURE CONTROLS AND PERSONAL PROTECTION

### Control parameters

Ingredients with limit values that require monitoring at the workplace:	
12190-79-3 Lithium Cobalt Oxide	
TLV (USA)	0.02mg/m <sup>3</sup>
MAK (Germany)	0.1mg/m <sup>3</sup>

**Other Exposure Guidelines** Vacated limits revoked by the Court of Appeals decision in AFL-CIO v. OSHA, 965 F.2d 962(11th Cir., 1992).

### Appropriate engineering controls

**Engineering Measures** Showers  
 Eyewash stations  
 Ventilation systems

Use adequate general or local exhaust ventilation to keep airborne concentrations below the permissible exposure limits. Ensure adequate ventilation.

### Individual protection measures, such as personal protective equipment

#### **Eye/Face Protection:**



**Tightly sealed goggles**

#### **Body protection:**

Protective work clothing.

#### **Skin protection:**



**Protective gloves**

#### **Material of gloves:**

The selection of the suitable gloves does not only depend on the material, but also on further marks of quality and varies from manufacturer to manufacturer. As the product is a preparation of several substances, the resistance of the glove material can not be calculated in advance and has therefore to be checked prior to the application.

#### **Penetration time of glove material:**

The exact break through time has to be found out by the manufacturer of the protective gloves and has to be observed.

**Respiratory Protection** No protective equipment is needed under normal use conditions. If exposure limits are exceeded or irritation is experienced, ventilation and evacuation may be required.



**Hygiene Measures** Handle in accordance with good industrial hygiene and safety practice.

## 9. PHYSICAL AND CHEMICAL PROPERTIES

Physical State	Form: Prismatic
	Color: Orange
	Odour: Odourless
	Odor Threshold: No information available
Change in condition:	Not determined.
pH, with indication of the concentration	Not determined.
Melting point/freezing point	Not determined.
Initial boiling point and Boiling range:	Not determined.
Flash Point	Not determined.
Evaporation rate	Not determined.
Flammability (solid, gas)	Not determined.
Upper/lower flammability or explosive limits	Not determined.
Vapor Pressure:	Not determined.
Vapor Density:	Not determined.
relative density:	Not determined.
Solubility in Water:	Not determined.
Solubility in other solvents	Not determined.
n-octanol/water partition coefficient	Not determined.
Auto-ignition temperature	Product is not self-igniting.
Decomposition temperature	Not determined.
Odour threshold	Not determined.
Evaporation rate	Not determined.
Viscosity	Not determined.
Other Information	No further relevant information available.

## 10. STABILITY AND REACTIVITY

**Reactivity:** Stable under recommended storage and handling conditions (see section 7, Handling and storage).

**Chemical stability:** Stable under normal conditions of use, storage and transport.

**Thermal decomposition/conditions to be avoided:** No decomposition if used according to specifications.

**Possibility of Hazardous Reactions:** None under normal processing.

**Hazardous Polymerization:** Hazardous polymerization does not occur.

**Conditions to avoid:** Strong heating, fire, Incompatible materials.

**Incompatible materials:** Strong oxidizing agents. Strong acids. Base metals.

**Hazardous Decomposition Products:** Carbon oxides, Other irritating and toxic gases.

## 11. TOXICOLOGICAL INFORMATION

**Acute toxicity:** No data available.

LD/LC50 values relevant for classification:
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Not available.
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**Skin corrosion/irritation:** No irritant effect.

**Serious eye damage/irritation:** Cause serious eye irritation.

**Respiratory or skin sensitization:** No sensitizing effects known.

**Specific target organ system toxicity:** No information available.

**CMR effects(carcinogenity, mutagenicity and toxicity for reproduction):** No information available.

## 12. Ecological Information

**Toxicity:**

Aquatic toxicity:
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No further relevant information available.
--

**Persistence and degradability:** No further relevant information available.

**Bioaccumulative potential:** No further relevant information available.

**Mobility in soil:** No further relevant information available.

Results of PBT and vPvB assessment

PBT: Not applicable.

vPvB: Not applicable.

**Other adverse effects:** No information available.

## 13. DISPOSAL CONSIDERATIONS

### Waste treatment methods

Recommendation: Must not be disposed together with household garbage.

Do not allow product to reach sewage system

### Uncleaned packaging:

Recommendation: Disposal must be made according to official regulations.

## 14. TRANSPORT INFORMATION

This report applies to by sea, by air and by land;

The Rechargeable Li-ion battery pack must be of a design type proved to meet the testing requirements of the Manual of test and criteria, Part III, subsection 38.3;

The Polymer Li-ion Battery according to Section II of PACKING INSTRUCTION 965-967 of the 2018 IATA Dangerous Goods regulations 59<sup>th</sup> Edition may be transported. and applicable U.S. DOT regulations for the safe transport of Lithium-ion Battery.

Polymer Li-ion Battery was protected so as to prevent short circuits. This includes protection against contact with conductive materials within the same packaging that could lead to short circuit;

Cell and batteries offered for transport must be packed in inner packaging's that completely enclose the cell or battery; to provide protection from damage or compression to the batteries, the inner packaging's must be placed in a strong rigid outer packaging;

The packaging shall be adequate to avoid mechanical damage during transport, handling and stacking. The materials and pack design shall be chosen so as to prevent the development of unintentional electrical conduction, corrosion of the terminals and ingress of moisture.

The package must be handled with care and that a flammability hazard exists if the package is damaged;

With regard to transport, the following regulations are cited and considered:

- The International Civil Aviation Organization (ICAO) Technical Instructions.
- The International Air transport Association (IATA) Dangerous Goods Regulations.

UN number of lithium battery: UN3480;

UN Proper shipping name/Description (technical name): Lithium ion batteries;

Marine pollutant(Y/N): N;

- The International Maritime Dangerous Goods Code 2016 Edition (Amdt.38-16)

For lithium-ion batteries by sea, provided that packaging is strong and prevent the products from short-circuit.

UN number of lithium battery: UN3481;

UN Proper shipping name/Description (technical name): Lithium ion batteries

Marine pollutant(Y/N): Y;

Special Provision: International maritime dangerous goods code (IMDG) 188, 230, 310, 348, 957;

- The US Hazardous Materials Regulation (HMR) pursuant to a final rule issued by RSPA
- The Office of Hazardous Materials Safety within the US Department of Transportations' (DOT) Research and Special Programs Administration (RSPA)

## 15. REGULATORY INFORMATION

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

EU Regulation:

**Authorisations:** No information available.

**Restrictions on use:** No information available.

### **Regulatory information**



CAS No.	EU (EINECS )	US (TSCA)	Japan (ENCS)	Canada (DSL/ NDSL)	Australia (AICS)	Korea (ECL)	China (IECSC)
12190-79-3	Listed	Not listed	Not listed	NDSL	Not listed	Not listed	Not listed
7429-90-5	Listed	Listed	Listed	DSL	Listed	Listed	Listed
12031-65-1	Listed	Listed	Listed	DSL	Listed	Listed	Listed
7782-42-5	Not listed	Listed	Not listed	DSL	Listed	Listed	Listed
7440-50-8	Not listed	Listed	Not listed	DSL	Listed	Listed	Listed
7439-89-6	Listed	Not listed	Not listed	NDSL	Not listed	Not listed	Not listed
21324-40-3	Listed	Not listed	Not listed	NDSL	Not listed	Not listed	Not listed
96-49-1	Listed	Not listed	Not listed	NDSL	Not listed	Not listed	Not listed
616-38-6	Listed	Not listed	Not listed	NDSL	Not listed	Not listed	Not listed
12057-17-9	Listed	Not listed	Not listed	NDSL	Not listed	Not listed	Not listed
7440-02-0	Listed	Not listed	Not listed	NDSL	Not listed	Not listed	Not listed
9002-88-4	Listed	Not listed	Not listed	NDSL	Not listed	Not listed	Not listed
141-78-6	Listed	Not listed	Not listed	NDSL	Not listed	Not listed	Not listed
1333-86-4	Listed	Not listed	Not listed	NDSL	Not listed	Not listed	Not listed
554-13-2	Listed	Not listed	Not listed	NDSL	Not listed	Not listed	Not listed
872-50-4	Listed	Not listed	Not listed	NDSL	Not listed	Not listed	Not listed

**Chemical safety assessment** A Chemical Safety Assessment has not been carried out.

## 16. OTHER INFORMATION

This information is based on our present knowledge. However, this shall not constitute a guarantee for any specific product features and shall not establish a legally valid contractual relationship.

\*\*\*\*\*End of SDS\*\*\*\*\*