

# MSDS

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# MSDS

**Samples Name:** Lithium Ion Rechargeable Batteries

**Model: /**

**Client Name:** ROOFER INTERNATIONAL LTD. / ROOFER TECHNOLOGY (SHENZHEN) CO., LTD

**Client Address:** 34&35, 2/F HI-TECH CENTRE, 9 CHOI YUEN ROAD, SHENG SHUI, N.T., HONG KONG

/ ROOFER BUILDING, GEXIA INDUSTRIAL AREA, SANLIAN VILLAGE, DALANG(S) RD., LONGHUA TOWN, SHENZHEN.518109 China

Signed for and on behalf of  
Shenzhen AOV Testing Technology Co., Ltd

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(Attention is drawn to the terms and conditions printed overleaf)

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## Material Safety Data Sheet

### Section 1 - Chemical Product and Company Identification

**Product Name:** Lithium Ion Rechargeable Batteries

**Manufacture:** ROOFER INTERNATIONAL LTD. / ROOFER TECHNOLOGY (SHENZHEN) CO., LTD

**Address:** 34&35, 2/F HI-TECH CENTRE, 9 CHOI YUEN ROAD, SHENG SHUI, N.T., HONG KONG  
 / ROOFER BUILDING, GEXIA INDUSTRIAL AREA, SANLIAN VILLAGE, DALANG(S) RD., LONGHUA TOWN,  
 SHENZHEN.518109 China

**Tel:** /

**Emergency Telephone:** /

**Fax:** /

**Email:** /

### Section 2 - Hazards Identification

**Fatalness grade:** In accordance with Regulation (EC) No 1272/2008, the sample is divided into dangerous article.

**Invasion route:** Skin contact: Contact with battery electrolyte may cause burns and skin irritation.

Eyes contact: Contact with battery electrolyte may cause burns. Eye damage is possible.

Inhalation: Inhalation of a large number of vapors or fumes released due to heat may cause respiratory and eye irritation.

Ingestion: Ingestion of battery contents may cause mouth, throat and intestinal burns and damage.

**Health hazards:** The chemical are contained in a sealed can. Risk of exposure occurs if the battery is mechanically or electrically abused.

**Environment hazards:** Don't abandon the battery into environment, may cause water or soil pollution.

**Burn & burst danger:** Do not dispose of battery in fire and recharge battery-may explode. Do not short-circuit battery –may cause burns.

### Section 3 –Composition/Information on Ingredient

Pure

Admixture

Composition:

Chemical Name	Molecular Formula	In % By Weight	CAS No.	EC No.
Cobaltic Lithium Oxide	LiCoO <sub>2</sub>	35.05	12190-79-3	235-362-0
Graphite powder	C	15.98	7782-42-5	231-955-3
Rubber	NA	10.36	69028-37-1	NA
Carbon black	C	0.79	1333-86-4	215-609-9
Styrene-butadiene rubber	NA	0.71	61789-96-6	NA
Polypropylene	(C <sub>3</sub> H <sub>6</sub> ) <sub>n</sub>	1.74	9003-07-0	NA
Polyethylene	(C <sub>2</sub> H <sub>4</sub> ) <sub>n</sub>	1.27	9002-88-4	NA
Lithium Hexafluorophosphate	LiPF <sub>6</sub>	1.27	21324-40-3	244-334-7
Ethylene Carbonate	C <sub>3</sub> H <sub>4</sub> O <sub>3</sub>	6.34	96-49-1	202-510-0
Diethyl Carbonate	C <sub>5</sub> H <sub>10</sub> O <sub>3</sub>	4.76	105-58-8	203-311-1
Propylene Carbonate	C <sub>4</sub> H <sub>6</sub> O <sub>3</sub>	1.11	108-32-7	203-572-1



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Chemical Name	Molecular Formula	In % By Weight	CAS No.	EC No.
Polycaprolactam	(C <sub>6</sub> H <sub>11</sub> NO) <sub>n</sub>	1.11	25038-54-4	NA
Copper	Cu	8.39	7440-50-8	231-159-6
Aluminum	Al	11.12	7429-90-5	231-072-3

Abbreviation: CAS No. is Chemical Abstract Service Registry Number.

EC No. is European Inventory of Existing Commercial chemical Substances Number.

NA= Not apply

## Section 4 - First Aid Measures

**Skin contact:** If the battery is leaking and the contained material contacts the skin, remove contaminated clothes quickly and rinse the skin with plenty of water at least 15 minutes. If irritation or pain persists, get medical aid at once.

**Eyes contact:** If the battery is leaking and the contained material contacts the eyes, flush the eyes with plenty of water or saline water at least 15 minutes. Get medical aid at once.

**Inhalation:** If the battery is leaking, remove to fresh air immediately. Keep the respiratory tract smooth. Use oxygen if available. Get medical aid.

**Ingestion:** If the battery is leaking and the contained material is ingested, rinse mouth and surrounding area with clear water at once. Get medical aid at once.

## Section 5 - Fire Fighting Measures

**Danger characteristic:** Batteries may burst and release hazardous decomposition products when exposed to a fire situation.

**Hazardous combustion products:** CO, CO<sub>2</sub>, Metal oxides, Irritating fumes

**Fire-Fighting method & media:** The staff must equip with filtermask (full mask) or isolated breathing apparatus. The staff must wear the clothes which can defense the fire and the toxic gas. Put out the fire in the upwind direction. Remove the container to the open space as soon as possible. Spray water on the containers in the fireplace to keep them cool until finish extinguishment. Media: hazy water, foam, powder, CO<sub>2</sub>, sandy clay.

## Section 6 –Accidental Release Measures

**Emergency treatment:** If the battery material is released, remove personnel from area until fumes dissipate. Provide maximum ventilation to clear out hazardous gases. The preferred response is to leave the area, dispose the case after the batteries cool and vapors dissipate. Provide maximum ventilation. Avoid skin and eye contact or inhalation of vapors. Remove spilled liquid with absorbent and other inert materials.

## Section 7 - Handling and Storage

**Handling:** Do not allow battery terminates to contact each other, or contact with other metals. Do not expose the battery to excessive physical shock or vibration. Don't immerse the battery into liquid. Short-circuiting should be avoided. Don't disassemble the battery personally or put into fire places. Place the cell beyond the child's reach. Take care when transport, prevent damaging the packing and container.

**Storage:** Keep the sample in the cool, dry and well-ventilated place. Do not exposure to direct sunlight for long periods. Keep away from fire and heating sources. Don't keep the samples with oxidizer and acid. Equip with relevant types and quantities of the extinguishment instruments. The storage place should be equipped with suitable shelter materials for divulgence handling.



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## Section 8 - Exposure Controls, Personal Protection

**Maximum admissible concentration:** No standard yet

**Monitoring Method:** /

**Engineering Control:** Supply with sufficient partial air exhaust.

**Respiratory Protection:** Wear self-contained breathing filtermask (half mask) if the density exceed in the air. Wear breathing apparatus under the condition of emergency rescue or evacuation.

**Eyes Protection:** Wear protective glasses.

**Body Protection:** Wear fireproofing, gas defense clothes.

**Hands Protection:** Wear rubber gloves.

**Other Protections:** No smoking, dining and drinking water in the workplace. Keep good habit of hygiene.

## Section 9 - Physical and Chemical Properties

**Appearance:** Solid

**Color:** /

**Odour:** Odorless

**Solubility:** Insoluble in water

## Section 10 - Stability and Reactivity

**Stability:** Stable under normal temperature and pressure

**Distribution of Ban:** strong oxidizer, strong acid

**Conditions to Avoid:** Fire source, heating source, technical or electrical abuse

**Hazardous Polymerization:** No known significant effects or critical hazards.

**Hazardous Decomposition Products:** The battery may release irritative gas once the electrolyte leakage.

## Section 11 - Toxicological Information

**Acute Toxicity:** No information is available.

**Sub-acute and Chronic Toxicity:** No information is available.

**Irritation:** The liquid in the battery irritates.

**Sensitization:** The liquid in the battery may cause sensitization to some person.

**Mutagenicity:** No information is available.

**Carcinogenicity:** No information is available.

**Others:** Since the materials in this battery are sealed in the can, the potential for exposure to the components of the battery is negligible, when the battery is used as directed. However technical or electrical abuse of the battery may result in the release of battery contents.

## Section 12 - Ecological Information

**Eco-toxicity:** No information is available.

**Biodegradable:** No information is available.

**Non-biodegradable:** No information is available.

**Bioconcentration or biological accumulation:** No information is available.

**Other harmful effects:** Don't abandon the battery into environment, may cause water or soil pollution.



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## Section 13 - Disposal Considerations

**Nature of waste:** No date.

**Waste disposal methods:** Refer to National or Local regulations before handling. Disposal of the battery should be performed by permitted, professional disposal firms knowledgeable in National or Local regulations of hazardous waste treatment and hazardous waste transportation.

**Attention abandoned:** The battery should be completely discharged prior to disposal in order to prevent short circuit. The battery contains recyclable materials. It is suggested recycle.

## Section 14 - Transport Information

**Number of dangerous goods:** 9

**UN Number:** 3480&3481

**Packaging Mark:** No date.

**Packaging Method:** No date.

**Transport Attentions:** According to PACKING INSTRUCTION II 965 ~ 967 of IATA DGR 54<sup>th</sup> Edition for transportation, the special provision 188 of IMDG (inc Amdt 35-10). The batteries should be securely packed and protected against short-circuits. Examine whether the package of the containers are integrate and tighten closed before transport. Take in a cargo of them without falling, dropping, and breakage. Prevent collapse of cargo piles. Don't put the goods together with oxidizer and chief food chemicals. The transport vehicle and ship must be cleaned and sterilized otherwise it is not allowed to assemble articles. During transport, the vehicle should prevent exposure, rain and high temperature. For stopovers, the vehicle should be away from fire and heat sources. When transported by sea, the assemble place should keep away from bedroom and kitchen, and isolated from the engine room, power and fire source. Under the condition of Road Transportation, the driver should drive in accordance with regulated route, don't stop over in the residential area and congested area. Forbid to use wooden, cement for bulk transport.

Lithium ion cell/battery, UN number 3480, must comply with section II of PI 965;

Lithium ion cell/battery packed with equipment, UN number 3481, must comply with section II of PI 966;

Lithium ion cell/battery contained in equipment, UN number 3481, must comply with section II of PI 967;

For cells, the Watt-hour (Wh) rating should less than 20Wh per cell;

For batteries, the Watt-hour (Wh) rating should less than 100Wh per battery.

For very small cells and batteries, up to 2.7Wh for lithium ion, the limit quantity per package shall not exceed 2.5kg.

For 2.7Wh to 20 Wh cells and batteries, the limit quantity per package shall not exceed 8pcs.

For lithium ion cell/battery packed with equipment or lithium ion cell/battery contained in equipment, the battery limit quantity per package shall not exceed 5kg.

## Section 15 - Regulatory Information

**Regulatory Information:**

ISO 11014-2009 Safety data sheet for chemical products - Content and order of sections.

Regulation (EC) No. 1272/2008 Classification, Labelling and Packaging of Substances and Mixtures.

The International Maritime Dangerous Goods (IMDG) Code (inc Amdt 35-10).

International Air Transport Association (IATA) Dangerous Goods Regulations, 54<sup>th</sup>, 2013.



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## Section 16 - Additional Information

The above information is based on the data of which we are aware and is believed to be correct as of the data hereof. Since this information may be applied under conditions beyond our control and with which may be unfamiliar and since data made available subsequent to the data hereof may suggest modifications of the information, we do not assume any responsibility for the results of its use. This information is furnished upon condition that the person receiving it shall make his own determination of the suitability of the material for his particular purpose.

\*\*\*End of MSDS\*\*\*

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