

# MSDS Report

Sample Description

Lithium-ion pack battery

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Applicant

HETER ELECTRONICS GROUP CO.,LTD

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Pony Testing International Group

Report ID: W02134010316D

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## Safety Data Sheet

Lithium-ion pack battery

### Section 1 - Identification of the substance/preparation and of the company/undertaking

#### Product Identifier

**Product name :** Lithium-ion pack battery

**Sample code :** HTCF 14.8V-8.8AH

#### Relevant identified uses of the substance or mixture and uses advised against

**Identified uses :** High power LED lights

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

**Applicant :** HETER ELECTRONICS GROUP CO.,LTD

**Address :** Thailand Industrial Park,Hi-tech District,Zaozhuang City,Shandong Province,China

**Post code :** 277800

**TEL :** +86-632-5292912

**FAX :** +86-632-5199218

**E-mail :** market13@heter.biz

#### Emergency telephone number

**Emergency Phone #** +86-632-5292912

### Section 2 - Hazards Identification

#### Classification of the substance or mixture

**Classification according to Regulation (EC) No 1272/2008 [EU-GHS/CLP]**

Acute toxicity, Oral (Category 4)

**Classification according to EU Directives 67/548/EEC or 1999/45/EC**

Xn, Harmful R22

#### Label elements



## Labelling according Regulation (EC) No 1272/2008 [CLP]

### Pictogram



**Signal word**      Warning

### Hazard statement(s)

H302 Harmful if swallowed.

### Precautionary statement(s)

P102 Keep out of reach of children.

P211 Do not spray on an open flame or other ignition source.

P305 + P351 + P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.

P310 Immediately call a POISON CENTER or doctor/ physician.

**Supplemental Hazard Statements**      none

**According to European Directive 67/548/EEC as amended.**

### Hazard symbol(s)



### R-phrase(s)

R 22 Harmful if Swallowed..

### S-phrase(s)

S 2 Keep out of the reach of children.

S 8 Keep container dry.

S 16 Keep away from sources of ignition - No smoking.

S 24 Avoid contact with eyes.

S 26 In case of contact with eyes, rinse immediately with plenty of water and seek medical advice.

S 45 In case of accident or if you feel unwell, seek medical advice immediately (show the label where possible).

**Other hazards**      No information available



## Section 3 – Composition/Information on Ingredient

### Chemical composition

Component	CAS No.	Formula	Composition	EC No.	Classification	GHSCLAS
Nickel cobalt lithium manganate	/	Li(NiCoMn)O <sub>2</sub>	38.09%	/	/	/
Conductive carbon black	1333-86-4	C	0.62%	215-609-9	Xn, R40	Carc. 2 H351
Graphite	7782-42-5	C	20.44%	231-955-3	/	/
Copper	7440-50-8	Cu	9.22%	231-159-6	/	Aquatic Chronic 1 H410
Aluminium	7429-90-5	Al	4.00%	231-072-3	F, R11 R15	Water-react.2 H261 Flam. Sol. 1 H228
Steel	/	/	25.06%	/	/	/
Sodium carboxymethyl cellulose	9004-32-4	C <sub>28</sub> H <sub>30</sub> N <sub>4</sub> O <sub>27</sub>	1.10%	/	/	/
Poly(vinylidene fluoride) (PVDF)	24937-79-9	(C <sub>2</sub> H <sub>2</sub> F <sub>2</sub> ) <sub>n</sub>	1.04%	/	/	/
Polypropylene	9003-07-0	[C <sub>3</sub> H <sub>6</sub> ] <sub>n</sub>	0.23%	/	/	/
Poly(ethylene terephthalate)	25038-59-9	(C <sub>10</sub> H <sub>8</sub> O <sub>4</sub> ) <sub>n</sub>	0.2%	/	/	/

For the full text of H-Statements and R-Phrases mentioned in this Section, see Section 16.

## Section 4-First Aid Measures

### Description of first aid measures





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**Eye Contact:** If battery is leaking and material contacts the eye, flush thoroughly with copious amounts of running water for 15 minutes (remove contact lenses if easily possible). Occasionally lifting the upper and lower eyelids, until no evidence of the chemical remains. Get medical aid.

**Skin Contact:** If battery is leaking and material contacts the skin, remove any contaminated clothing and flush exposed skin with copious amounts of running water for at least 15 minutes. If irritation, injury or pain persists, seek medical advice.

**Ingestion:** Do not induce vomiting. Never give anything by mouth to an unconscious person. Get medical aid. Loosen tight clothing such as a collar, tie, belt or waistband.

**Inhalation:** Evacuate the victim to a safe area as soon as possible. Loosen tight clothing such as a collar, tie, belt or waistband. If breathing is difficult, administer oxygen. If the victim is not breathing, perform mouth-to-mouth resuscitation. Seek medical attention if irritation develops or persists.

**WARNING:** It may be hazardous to the person providing aid to give mouth-to-mouth resuscitation when the inhaled material is toxic, infectious or corrosive. Seek immediate medical attention.

**Notes to Physician:** Treat symptomatically.

## Section 5 – Fire-Fighting Measures

### Extinguishing media

#### Suitable Extinguishing Media:

In case of fire where lithium ion batteries are present, flood the area with water. If any batteries are burning, water may not extinguish them, but will cool the adjacent batteries and control the spread of fire. CO<sub>2</sub>, dry chemical, and foam extinguishers are preferred for small fires, but also may not extinguish burning lithium ion batteries. Burning batteries will burn themselves out. Virtually all fires involving lithium ion batteries can be controlled with water. When water is used, however, hydrogen gas may be evolved which can form an explosive mixture with air. LITH-X (powdered graphite) or copper powder fire extinguishers, sand, dry ground dolomite or soda ash may also be used. These materials act as smothering agents.

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

Thermal decomposition can lead to release of irritating gases and vapors. Batteries evolve flammable hydrogen gas during charging and may increase fire risk in poorly ventilated areas near sparks, excessive heat or open flames. Thermal shock may cause battery case to crack open.





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Containers may explode when heated. Firefighting water runoff and dilution water may be toxic and corrosive and may cause adverse environmental impacts.

**Advice for firefighters:**

As in any fire, wear self-contained breathing apparatus pressure-demand, MSHA/NIOSH (approved or equivalent) and full protective gear.

**Section 6 - Accidental Release Measures**

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

If the internal battery material leaks. Notify safety personnel of large spills. Clean-up personnel should wear appropriate protective clothing to avoid eye and skin contact and inhalation of vapors or fumes. Increase ventilation. Remove ignition sources, Keep away from heat and flame. Carefully collect batteries and place in an appropriate container for disposal. Damaged batteries that are not hot or burning should be placed in a sealed plastic bag or container.

**Environmental precautions**

Prevent material from contaminating soil and from entering sewers or waterways.

**Methods and materials for containment and cleaning up**

Sweep up and place in suitable containers for recycle or disposal according to local / national regulations (see section 13). Keep in suitable, closed containers for disposal.

**Section 7 - Handling and Storage**

**Precautions for safe handling**

Do not expose the battery to excessive physical shock or vibration. Short-circuiting should be avoided, however, accidental short-circuiting for a few seconds will not seriously affect the battery. Prolonged short circuits will cause the battery to rapidly lose energy, could generate enough heat to burn skin, even cause fire or explosion. Sources of short circuits include jumbled batteries in bulk containers, coins, metal jewelry, metal covered tables, or metal belts used for assembly of batteries in devices. To minimize risk of short-circuiting, the protective case supplied with the battery should be used to cover the terminals when transporting or storing the battery. Do not disassemble or deform the battery. The lithium ion battery should be between 10% and 50% of full charge when





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transportation. Do not carry batteries loose in a pocket or bag. Do not remove battery tester or battery label. Do not allow contact with water. Do not store in direct sunlight.

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

Store in a cool, dry, well ventilated area. Elevated temperatures can result in reduced battery service life, loss of battery performance, leakage, or rust. Do not refrigerate – this will not make them last longer. Do not expose the battery to open flames, light and heat. Keep away from combustible materials, organic chemicals, reducing substances, metals, strong oxidizers and water.

#### Specific end uses

No data available

## Section 8 - Exposure Controls/Personal Protection

#### Control parameters

#### Exposure limits:

CAS# 1333-86-4:

Australia-TWA: 3 mg/m<sup>3</sup>

Belgium - TWA: 3.6 mg/m<sup>3</sup>

France - VME: 3.5 mg/m<sup>3</sup>

Japan-OEL: 1 mg/m<sup>3</sup> (respirable dust); 4 mg/m<sup>3</sup> (total dust)

Netherlands- MAC-TGG: 3.5 mg/m<sup>3</sup>

Russia- STEL: 4 mg/m<sup>3</sup>

United Kingdom-TWA: 3.5 mg/m<sup>3</sup> STEL: 7 mg/m<sup>3</sup>

CAS# 7782-42-5:

ACGIH: United States- TWA: 2 mg/m<sup>3</sup> (respirable)

Belgium - TWA: 2 mg/m<sup>3</sup> (resp. dust)

Denmark- TWA: 2.5 mg/m<sup>3</sup> (respirable)

Finland-TWA: 5 mg/m<sup>3</sup>

France - VLE: 2 mg/m<sup>3</sup>

Germany- MAK: 4 mg/m<sup>3</sup> (inhalable); 1.5 mg/m<sup>3</sup> (respirable)

Japan-OEL: 0.5 mg/m<sup>3</sup> (respirable), 2 mg/m<sup>3</sup> (total)

Korea- TWA: 10 mg/m<sup>3</sup>; 2.5 mg/m<sup>3</sup>





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Netherlands- MAC-TGG: 2 mg/m<sup>3</sup>

United Kingdom- TWA: 10 mg/m<sup>3</sup> (inhalable); 4 mg/m<sup>3</sup> (respirable)

CAS# 7440-50-8:

Australia-TWA: 0.2 mg/m<sup>3</sup> (fume); 1 mg/m<sup>3</sup> (dust and mist)

Belgium - TWA: 0.2 mg/m<sup>3</sup>(fume); 1 mg/m<sup>3</sup> (dust, aerosol)

France - VME: 1 mg/m<sup>3</sup>(dust);0.2 mg/m<sup>3</sup> (fume)

Netherlands- MAC-TGG: 0.2 mg/m<sup>3</sup> (fume); 1 mg/m<sup>3</sup> (dust)

Russia- TWA: 0.5 mg/m<sup>3</sup>;STEL: 1 mg/m<sup>3</sup>

CAS# 7429-90-5:

ACGIH: United States- TWA: 10 mg/m<sup>3</sup> (dust)

Australia- TWA: 2 mg(Al)/m<sup>3</sup>;5 mg/m<sup>3</sup> (pyro powders); 5 mg/m<sup>3</sup> (welding fumes)

Belgium- TWA: 10 mg/m<sup>3</sup>;5 mg/m<sup>3</sup> (pyro powders); 5 mg/m<sup>3</sup> (welding fumes)

Denmark- TWA:10 mg(Al)/m<sup>3</sup>; 10 mg/m<sup>3</sup> (dust)

France-VME: 10 mg/m<sup>3</sup>, 5 mg/m<sup>3</sup> (fume, resp. dust)

Germany-MAK: 1.5 mg/m<sup>3</sup> (respirable)

Japan-OEL: 0.5 mg/m<sup>3</sup> (respirable); 2 mg/m<sup>3</sup> (total)

Korea- TWA: 10 mg/m<sup>3</sup> (metal dust);5 mg/m<sup>3</sup> (pyro powders); 5 mg/m<sup>3</sup> (welding fumes)

Netherlands- MAC-TGG: 10 mg/m<sup>3</sup>

Russia-STEL: 2 mg/m<sup>3</sup>

United kingdom- TWA: 10 mg/m<sup>3</sup> (inhalable); 4 mg/m<sup>3</sup> (respirable)

CAS# 9003-07-0:

Russia- STEL: 10 mg/m<sup>3</sup>

### Engineering Controls

Facilities storing or utilizing this material should be equipped with an eyewash facility and a safety shower. Use adequate ventilation to keep airborne concentrations low.

### Personal Protective Equipment

**Eyes Protection:** Not necessary under normal conditions. Wear safety glasses with side shields if handling an open or leaking battery.

**Skin Protection:** Not necessary under normal conditions. Use neoprene or natural rubber gloves if handling an open or leaking battery.





**Body Protection:** Not necessary under normal conditions. Wear appropriate protective clothing if handling an open or leaking battery.

**Respirators Protection:** In case of battery venting, provide as much ventilation as possible. Avoid confined areas with venting batteries. Respiratory Protection is not necessary under conditions of normal use.

**Other Protection:** Do not eat, smoke or drink where material is handled, processed or stored. Wash hands carefully before eating or smoking. To maintain good health habits.

## Section 9 - Physical and Chemical Properties

<b>Appearance</b>	Form: Square
	Colour: Black
<b>Odour</b>	No data available
<b>Odour Threshold</b>	No data available
<b>pH</b>	No data available
<b>Melting point/freezing point</b>	No data available
<b>Initial boiling point and boiling range</b>	No data available
<b>Flash point</b>	No data available
<b>Evaporation rate</b>	No data available
<b>Flammability (solid, gas)</b>	No data available
<b>Upper/lower flammability or explosive limits</b>	No data available
<b>Vapour pressure</b>	No data available
<b>Vapour density</b>	No data available
<b>Relative density</b>	No data available
<b>Water solubility</b>	Insoluble
<b>Partition coefficient: n-octanol/water</b>	No data available
<b>Autoignition temperature</b>	No data available
<b>Decomposition temperature</b>	No data available
<b>Viscosity</b>	No data available
<b>Normal Voltage:</b>	14.8v
<b>Capacitance:</b>	8.8 Ah



**Charge current:** 4.4A

**Weight:** 893g

## Section 10 - Stability and Reactivity

**Reactivity** No data available

**Chemical stability** Stable under normal conditions.

### Possibility of hazardous reactions

**Hazardous Polymerization** Will not occur.

**Hazardous Reactions** None under normal processing.

**Conditions to avoid** Incompatible materials, excess heat, exposure to moist air or water.  
Mechanical abuse (such as crushing, piercing, and disassembly) and electrical abuse (such as recharging, voltage reversal and short-circuiting).

**Incompatible materials** Strong mineral acids, water, alkali solutions, strong oxidizing materials and conductive materials

**Hazardous decomposition products** Thermal decomposition during fire produces hazardous oxides of carbon (mainly CO and other VOC's) and phosphorous, hydrofluoric acid and other toxic by-products. Metallic compounds such as oxides of nickel, cobalt and copper. Electrolyte with water: Hydrofluoric acid (HF).

## Section 11 - Toxicological Information

### Information on toxicological effects

#### Acute toxicity:

CAS#1333-86-4:

Oral, rat: LD50 > 15400 mg/kg;

Skin, rabbit: LD50 > 3000 mg/kg;

CAS# 7440-50-8:

Oral, mouse: LD50 = 413 mg/kg;

CAS# 9003-07-0:





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Intraperitoneal, rat: LD50 > 110.000 mg/kg;

Intravenous, rat: LD50 > 99.000 mg/kg;

Oral, mouse: LD50 = 5000 mg/kg;

Oral, rat: LD50 > 8000 mg/kg;

#### **Skin corrosion/irritation**

No data available

#### **Serious eye damage/eye irritation**

No data available

#### **Respiratory or skin sensitization**

No data available

#### **Germ cell mutagenicity**

No data available

#### **Carcinogenicity**

Nickel cobalt lithium manganate - The toxicological properties have not been thoroughly investigated.

Conductive carbon black - This product is or contains a component that has been reported to be possibly carcinogenic based on its IARC, ACGIH, NTP, or EPA classification. Group 2B - Possibly carcinogenic to humans.

Graphite - IARC: No component of this product present at levels greater than or equal to 0.1% is identified as probable, possible or confirmed human carcinogen by IARC.

Copper - IARC: No component of this product present at levels greater than or equal to 0.1% is identified as probable, possible or confirmed human carcinogen by IARC.

Aluminium- IARC: No component of this product present at levels greater than or equal to 0.1% is identified as probable, possible or confirmed human carcinogen by IARC.

Steel - The toxicological properties have not been thoroughly investigated.

Sodium carboxymethyl cellulose - IARC: No component of this product present at levels greater than or equal to 0.1% is identified as probable, possible or confirmed human carcinogen by IARC.

Poly(vinylidene fluoride) (PVDF)- IARC: No component of this product present at levels greater than or equal to 0.1% is identified as probable, possible or confirmed human carcinogen by IARC.

Polypropylene - IARC: No component of this product present at levels greater than or equal to 0.1% is identified as probable, possible or confirmed human carcinogen by IARC.





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Poly(ethylene terephthalate) - IARC: No component of this product present at levels greater than or equal to 0.1% is identified as probable, possible or confirmed human carcinogen by IARC.

#### **Reproductive toxicity**

No data available

#### **Specific target organ toxicity - single exposure**

No data available

#### **Specific target organ toxicity - repeated exposure**

No data available

#### **Aspiration hazard**

No data available

#### **Potential Health Effects**

**Eye:** No special hazard risk under normal use. Contact with battery contents may cause severe irritation and burns. Eye damage is possible.

**Skin:** No special hazard risk under normal use. Contact with battery contents may cause severe irritation and burns. May be absorbed through the skin causing localized inflammation.

**Ingestion:** May cause severe and permanent damage to the digestive tract. May cause circulatory system failure. Contents of an open battery can cause serious chemical burns of mouth, esophagus, and gastrointestinal tract.

**Inhalation:** Inhalation of vapors or fumes released due to heat or a large number of leaking batteries may cause respiratory irritation. Irritation may lead to chemical pneumonitis. Inhalation can produce chronic productive cough, and shortness of breath.

#### **Signs and Symptoms of Exposure**

Under normal conditions of use, the solid electrode materials and liquid electrolyte they contain are non-reactive provided the battery integrity is maintained and seals remain in tact. Caution, do not open or disassemble. Do not expose to fire or open flame. Do not mix with batteries of varying sizes, chemistries or types. Risk of fire, explosion and burns. Do not short-circuit, crush, incinerate or disassemble battery.

#### **Additional Information**

**RTECS#:** CAS#1333-86-4: FF5800000/ CAS# 7782-42-5: MD9659600/ CAS# 7440-50-8:

GL5325000/ CAS# 7429-90-5: BD0330000 / CAS# 9004-32-4: FJ5950000/ CAS#

24937-79-9: Unlisted/ CAS# 9003-07-0: UD1842000/ CAS# 25038-59-9: TR2725000



## Section 12 - Ecological Information

### Toxicity

No data available

### Persistence and degradability

No data available

### Bioaccumulative potential

No data available

### Mobility in soil

No data available

### Results of PBT and vPvB assessment

No data available

### Other adverse effects

When promptly used or disposed the battery does not present environmental hazard. When disposed, keep away from water, rain and snow.

## Section 13 - Disposal Considerations




### Waste treatment methods

**Waste from Residues / Unused Products:** Chemical waste generators must determine whether a discarded chemical is classified as a hazardous waste. Additionally, waste generators must consult state and local hazardous waste regulations to ensure complete and accurate classification.

**Contaminated packaging:** Contaminated packaging material should be treated equivalent to residual chemical. Clean packaging material should be subjected to waste management schemes (recovery recycling, reuse) according to local legislation.



**Section 14 - Transport Information**

	<b>IATA</b>	<b>IMDG</b>	<b>RID/ADR</b>
<b>Proper shipping name</b>	Lithium ion batteries	Lithium ion batteries	Lithium ion batteries
<b>Hazard class</b>	9	9	9
<b>Un number</b>	UN3480	UN3480	UN3480
<b>Packing group</b>	II	II	II
<b>Packaging sign</b>			

**Section 15 - Regulatory Information**

This safety datasheet complies with the requirements of Regulation (EC) No. 1907/2006.

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

No data available

**Canada**

All chemicals in this product with known CAS numbers are listed on Canada's DSL List.

**US Federal**

**Toxic Substance Control Act (TSCA)**

All chemicals in this product with known CAS numbers are listed on the TSCA Inventory.

**Section 16 - Additional Information**

**MSDS Creation Date:** Feb 17, 2012

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





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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.

Text of H-code(s) and R-phrase(s) mentioned in Section 3

Carc. 2: Carcinogenicity(Category 2)

Flam. Sol. 1: Flammable solid(Category 1)

Water-react.2: Substance or mixture which in contact with water emits flammable gas(Category 2)

Aquatic Chronic 1: Hazardous to the aquatic environment(Category 1)

R 11 Highly Flammable.

R 15 Contact with water liberates extremely flammable gases.

R 40 Limited evidence of a carcinogenic effect.

H228 Flammable solid

H261 In contact with water releases flammable gas

H351 Suspected of causing cancer.

H410 Very toxic to aquatic life with long lasting effects.

Other Information:

ACGIH: (American Conference of Governmental Industrial Hygienists) ; CAS: (Chemical Abstracts Service) ; DSL:(the Domestic Substances List of Canada) ; EC:(European Commission) ; IARC: (International Agency for Research on Cancer) ; IATA: (International Air Transport Association) ; IMDG: (International Maritime Dangerous Goods) ; ADR: (European Agreement Concerning the International Carriage of Dangerous Goods by Road) ; RID: (Regulations Concerning the International Carriage of Dangerous Goods by Rail) ; LD50: (Lethal dose, 50 percent kill) ; NDSL: (the Non-domestic Substances List of Canada) ; NIOSH: (US National Institute for Occupational Safety and Health) ; NTP: (US National Toxicology Program) ; OSHA: (US Occupational Safety and Health) ; PEL: (Permissible Exposure Level) ; REL: (Recommended Exposure Limit) ; RTECS: (Registry of Toxic Effects of Chemical Substances) ; STEL: (Short Term Exposure Limit) ; TDG: (Recommendations on the TRANSPORT OF DANGEROUS GOODS Model Regulations) ; TSCA: (Toxic Substances Control Act of USA) ; TWA: (Time Weighted Average) ; TLV: (Threshold Limit Value)



