

DONGGUAN GOLDEN CEL BATTERY CO., LTD.

MATERIAL SAFETY DATA SHEET (MSDS)

According European Directive 2001/58/CE

Issue Date:17/07/2014

Rev: 2014-029G

1. Product & Company Identification

Product Description:	Li-Ion Polymer Battery UN3481 of UN3480	DONGGUAN GOLDEN CEL BATTERY CO., LTD www.celbattery.com	
Address:	YingHu industrial Zone, JiaoYiTang, TangXia Town, DongGuan		
Telephone:	+86-769-82195308	FAX:	+86-769-87982226

Product information:

Name: lithium-ion batteries Model: 2*903040(3.7V 2000mAh 7.4Wh)

Nominal voltage: 3.7V Rated capacity: 2000 mAh Electric energy : 7.4Wh

2. 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.

Chemical Composition	Molecular formula	CAS NO.	Weight(%)
Lithium Cobalt Dioxide	LiCoO ₂	12190-79-3	39.64
Aluminum	Al	7429-90-5	5.54
PVDF	(CH ₂ -CF ₂) _n	24937-79-9	1.71
Craphite	C	7782-42-5	23.19
Copper	Cu	7440-50-8	9.7
SBR	...	9003-55-8	1.25
Polyethylene	PE	9002-88-4	0.05
Polypropylene	PP	9003-07-0	6.8
Lithium Hexafluorophoshate	LiPF ₆	21324-40-3	15.4
Electrolyte Carbonate	EC	96-49-1	2.72

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3. Hazardous Identification:

No harm at the normal use. If contact the electrolyte in the battery, reference as follows:

Classification of the substance or mixture

Classification according to GHS

Acute toxicity, Oral (Category 4)

Acute toxicity, Dermal (Category 3)

Skin, irritate (Category 1B)

Eyes, irritate (Category 1)

Label elements

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

Signal word: Danger

Hazard statement(s): H311: Toxic in contact with skin.

H314: Causes severe skin burns and eye damage

H302: Harmful if swallowed.

Precautionary statement(s):

Prevention: P280: Wear protective gloves/protective clothing/eye protection / face protection.

Response: P312: Call a POISON CENTER or doctor/ physician if you feel unwell. P302 + P350 - IF ON SKIN:

Gently wash with plenty of soap and water P301 + P330 + P331 - IF SWALLOWED: rinse mouth. Do NOT induce vomiting P305 + P351 + P338 - IF IN EYES: Rinse cautiously with water

for several minutes. Remove contact lenses, if present and easy to do.

Disposal: P501: Dispose of contents/container in accordance with local/national regulations

Other hazards No information available.

4. First Aid Measures

Description of first aid measures

General information No special measures required.

After eye contact

Flush eyes with plenty of water for several minutes while holding eyelids open. Get medical attention if irritation persists.

After skin contact

Remove contaminated clothing and shoes. Immediately wash with water and soap and rinse thoroughly. Wash clothing and shoes before reuse. If irritation occurs, get medical attention.



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After inhalation

Remove victim to fresh area. Administer artificial respiration if breathing is difficult. Seek medical attention.

After swallowing

Do not induce vomiting. Get medical attention.

Information for doctor:

Indication of any immediate medical attention and special treatment needed

No further relevant information available.

5. Fire Fighting Measures

Flammability: Not available.

Extinguishing media

Suitable extinguishing agents

Use extinguishing agent suitable for local conditions and the surrounding environment Such as dry powder, CO₂.

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(302°F)), 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.

Advice for firefighters

Protective equipment: Wear self-contained respirator. Wear fully protective impervious suit.

6. Accidental Release Measures

Personal precautions, protective equipment and emergency procedures

Wear protective equipment. Keep unprotected persons away. Ensure adequate ventilation

Environmental precautions

Do not allow material to be released to the environment without proper governmental permits.

Steps to be taken in case material is spilled or released

Remove ignition sources, evacuate area. Sweep up using a method that does not generate dust. Collect as much of the spilled material as possible, placed the spilled material into a suitable disposal container. Keep spilled material out of sewers, ditches and bodies of water.

Waste disposal method

All waste must refer to the United Nations, the national and local regulations for disposal.

Reference to other sections

See Section 7 for information on safe handling.

See Section 8 for information on personal protection equipment.

See Section 13 for disposal information.



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7. Handling & Storage

Handling

Precautions for safe handling

Consumption of food and beverage should be avoided in work areas.

Wash hands with soap and water before eating, drinking.

Ground containers when transferring liquid to prevent static accumulation and discharge.

Information about fire and explosion protection

Batteries may explode or cause burns, if disassembled, crushed or exposed to fire or high temperatures. Do not short or install with incorrect polarity.

Conditions for safe storage, including any incompatibilities

Requirements to be met by storerooms and receptacles

Store in a cool, dry, well-ventilated place.

Information about storage in one common storage facility

Keep away from heat, avoiding the long time of sunlight.

Further information about storage conditions

Keep container tightly sealed.

Specific and use

No further relevant information available.

8. Exposure Control/Personal Protection

Control parameters

Ingredients with limit values that require monitoring at the workplace:	
12190-79-3 Lithium Cobalt Oxide	
TLV (USA)	0.02mg/m3
MAK(Germany)	0.1mg/m3

Exposure controls

Personal protective equipment

General protective and hygienic measures

The usual precautionary measures for handling chemicals should be followed.

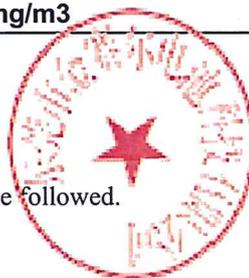
Keep away from foodstuffs, beverages and feed.

Remove all soiled and contaminated clothing immediately.

Wash hands before breaks and at the end of work.

Respiratory Protection

Use suitable respirator when high concentrations are present.



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9. Physical and Chemical Properties

Information on basic physical and chemical properties

General information

Appearance: Silver.
Form: Prismatic.
Odour: Odorless.
pH: Not available.

Change in condition

Melting point: Not available.
Boiling point: Not available.
Freezing point: Not available.
Flash point: Not available.
Flammability: Not available.
Ignition temperature: Not available.
Decomposition temperature: Not available.
Self-igniting: Not available.
Danger of explosion: Not available.

Explosion limits

Lower: Not available.
Upper: Not available.
Oxidizing properties: Not available.
Vapour pressure: Not available.
Density: Not available.
Relative density: Not available.
Vapour density: Not available.
Evaporation rate: Not available.

Solubility in/Miscibility with water: Not available.

n-octanol/water partition coefficient: Not available.

Viscosity Not available.

Dynamic: Not available.

Kinematic: Not available.

Other information:

Voltage 3.7V
Electric capacity 2000mAh
Electric Energy 7.4Wh



10. Stability and Reactivity

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Reactivity: Data not available.

Chemical stability: Stable.

Possibility of hazardous reactions: Data not available.

Conditions to Avoid

Flames, sparks, and other sources of ignition, incompatible materials.

Incompatibilities

Oxidizing agents, acid, base.

Hazardous Combustible Products

Carbon monoxide, carbon dioxide, lithium oxide fumes.

Hazardous Polymerization

N/A.

11. Toxicological information

Information on toxicological effects

Acute toxicity

LD/LC50 Values relevant for classification:

Not available.

Primary irritant effect

No further relevant information available.

Sensitization:

No further relevant information available.

Additional toxicological information:

Toxicological, metabolism and distribution:

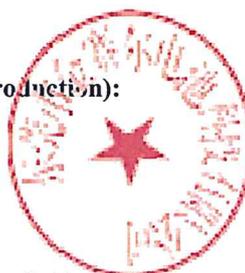
No further relevant information available.

Acute effects (acute toxicity, irritation and corrosivity):

No further relevant information available.

CMR effects (carcinogenicity, mutagenicity and toxicity for reproduction):

No further relevant information available.



12. Ecological information

Toxicity

Aquatic toxicity: No further relevant information available.

Persistence and degradability: No further relevant information available.

Behaviour in environmental systems

Bioaccumulative potential: No further relevant information available.

Mobility in soil: No further relevant information available.

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Ecological effects

Additional ecological information

General notes:

Do not allow material to be released to the environment without proper governmental permits.

Other adverse effects: No further relevant information available.

13. Disposal considerations

Waste treatment methods

Recommendation:

Consult state, local or national regulations to ensure proper disposal.

Uncleaned packaging

Recommendation: Disposal must be made according to official regulations.

14. Transport Information

According to the Packing Instruction 965~967 IATA DGR 55 Edition for transportation, or the special provision 188 of IMDG, or the <<Recommendations On The Transport Of Dangerous Goods-Model Regulations>> (18).

More information concerning shipping, testing, marking and packaging can be obtained from Label master at <http://www.labelmaster.com>.

Separate Lithium-ion batteries when shipping to prevent short-circuiting. They should be packed in strong packaging for support during transport. Take in a cargo of them without falling, dropping, and breakage. Prevent collapse of cargo piles and wet by rain.

Transport Fashion: By air, by sea, by railway, by road.

15. Disposal Considerations

This Material Safety Data Sheet complies with the requirements of Regulation (EC) No. 1907/2006.

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

Composition	CAS#	TSCA	EC#	EINECS
Lithium Cobalt Oxide	12190-79-3	Listed	235-362-0	Listed
PVDF	24937-79-9	Listed	200-867-7	Listed
Graphite	7782-42-5	Listed	231-955-3	Listed

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Polyethylene	9002-88-4	Listed	200-815-3	Listed
Copper	7440-50-8	Listed	231-159-6	Listed
Aluminum	7429-90-5	Listed	231-072-3	Listed
Polypropylene	9003-07-0	Listed	---	Not Listed
SBR	9003-55-8	Listed	---	Not Listed
Lithium Hexafluorophosphat	21324-40-3	Listed	244-334-7	Listed
Electrolyte Carbonate	96-49-1	Listed	202-510-0	Listed

16. Additional Information

Abbreviations and acronyms

CLP:	EU regulation (EC) No 1272/2008 on classification, labelling and packaging of chemical substances and mixtures.
CAS:	Chemical Abstracts Service (Division of the American Chemical Society).
ACGIH:	American Conference of Governmental Industrial Hygienists
TLV:	Threshold Limit Value
IATA:	International Air Transport Association
IMDG:	International Maritime Dangerous Goods
LC50:	lethal concentration, 50 percent kill
LD50:	lethal dose, 50 percent kill
TWA:	Time Weighted Average
TSCA:	United States Toxic Substances Control Act Section 8(b) Inventory
EINECS:	European Inventory of Existing Commercial Chemical Substances
Model:	Recommendations on the Transport of Dangerous Goods Model
Regulations:	Regulations

17. UN Classes:

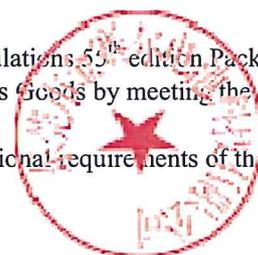
Classified as Lithium ion batteries (UN3481), 2014 IATA Dangerous Goods regulations 55th edition Packing Instruction PI966 Section II is applied. The product is handled as Non-Dangerous Goods by meeting the following requirements. (1)

Lithium ion cells and batteries offered for transport are not subject to other additional requirements of the UN Regulations if they meet the following: (1) (3)

1. for cells, the watt-hour rating is not more than 20Wh;
2. for batteries, the watt-hour rating is not more than 100Wh.

The Watt-hour rating must be marked on outside of the battery case except those manufactured before 1 January 2009 which may be transported without this marking until 31 December 2012

3. each cell or battery is of the type proven to meet the requirements of each test in the UN Manual of Tests and Criteria Part III subsection 38.3.



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All Li Polymer batteries with the necessary testing requirements under the UN38.3 Manual of Tests and Criteria as referenced in the following transportation regulations.

1. UN recommendations on the Transport of Dangerous Goods Model Regulations.
2. U.S Department of Transportation of Dangerous Goods Model Regulations.
3. International Civil Aviation Organization (ICAO) Technical Instructions
4. International Maritime Dangerous Goods (IMDG) code

Li Polymer Battery are exempted from these regulations since they meet all UN testing requirements and contain no more than 8 grams of equivalent lithium content (see 49 CFR 173.185 of the US HMR, IATA Dangerous Goods Regulations and Special Provision 188 of the IMDG Code and UN model Regulations.

18. Other information

The information contained herein is furnished without warranty of any kind. Users should consider this data only as a supplement to other information gathered by them and must make independent determinations of the suitability and completeness of information from all sources to assure proper use and disposal of these materials and the safety and health of employees and customers.

Reference

Chemical substances information: Japan Advanced Information center of Safety and Health
International Chemical Safety Cards (ICSCs): International Occupational Safety and Health Information Centre (CIS)
2002 TLVs and BEIs: American Conference of Governmental Industrial Hygienists (ACGIH)
Dangerous Goods Regulations -The 55th edition 1 January 2014: International Air Transport Association (IATA)
IMDG Code - 2006 Edition: International Maritime Organization (IMO)
RTECS (CD-ROM)
MSDS of raw materials prepared by the manufacturers.



End