



Pony Testing International Group

Report No.: H10291036216D

MSDS Report

Sample Description

Lithium Battery DD ER321270

Applicant

Tianjin Saiyingsi Battery Co.,Ltd.

Pony Testing International Group

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Material Safety Data Sheet

Lithium Battery DD ER321270

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

Product Identifier

Product name : Lithium Battery DD ER321270

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

Identified uses : /

Details of the supplier of the safety data sheet

Applicant : Tianjin Saiyingsi Battery Co.,Ltd

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Emergency telephone number

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Section 2 - Hazards Identification

Classification of the substance or mixture

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

Acute toxicity, Inhalation (Category 4) Acute toxicity, Oral (Category 4)

Carcinogenicity (Category 2) Skin corrosion(Category 1A)

Substances, which in contact with water, emit flammable gases (Category 1)

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

Xn, R20/22 R40 C, R35 R14/15 R 29

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Label elements

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

Pictogram



Signal word

Danger

Hazard statement(s)

H260 In contact with water releases flammable gases which may ignite spontaneously.

H302 Harmful if swallowed.

H314 Causes severe skin burns and eye damage.

H332 Harmful if inhaled.

H351 Suspected of causing cancer.

EUH014 Reacts violently with water.

EUH029 Contact with water liberates toxic gas.

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-phrases(s)

R14/15 Reacts violently with water, liberating extremely flammable gases.

R20/22 Harmful by inhalation and if swallowed.

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R29 Contact with water liberates toxic gas.

R35 Causes severe burns.

R40 Limited evidence of a carcinogenic effect.

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
Thionyl chloride	7719-09-7	SOCl ₂	44%-45%	231-748-8	R14 Xn, R20/22 R29 C, R35	Acute Tox. 4* Acute Tox. 4* Skin Corr. 1A H332 H302 H314 EUH014 EUH029
Lithium metal	7439-93-2	Li	3%-4%	231-102-5	F, R14/15 C, R34	Water-react. 1 Skin Corr. 1B H260 H314 EUH014
Aluminum chloride	7446-70-0	AlCl ₃	4%-5%	231-208-1	C, R34	Skin Corr. 1B H314
Carbon black	1333-86-4	C	6%-7%	215-609-9	Xn, R40	Carc. 2 H351
Lithium chloride	7447-41-8	LiCl	1%-2%	231-212-3	Xn, R22 Xi, R36/37/38	Acute Tox. 4* Skin Irrit. 2 Eye Irrit. 2 STOT SE 3 H302 H315 H319 H335

Component	CAS No.	Formula	Composition	EC No.	Classification	GHSCLAS
Nickel	7440-02-0	Ni	8%-9%	231-111-4	Carc. Cat. 3, R40 T, R48/23 R43	Carc. 2 STOT RE 1 Skin Sens. 1 H351 H372 H317
Stainless steel	12597-68-1	/	23%-24%	/	/	/
Glass film	65997-17-3	/	4%-5%	266-046-0	Xi, R36/37/38	Skin Irrit. 2 Eye Irrit. 2 STOT SE 3 H315 H319 H335
Epoxy resin	/	/	2%-3%	/	/	/

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

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:

Lith-X powder, Class D fire extinguisher, Dry Lithium Chloride, Graphite Powder, Pyrene G-1.

Special hazards arising from the substance or mixture:

Thermal decomposition can lead to release of irritating gases and vapors. Do not short circuit, recharge, over discharge (discharge below 0.0 Volts), puncture, crush or expose to temperatures above the maximum rated temperature as specified by the manufacturer. Cell may leak, vent, or explode. If a bright white flame is present, lithium content is exposed and on fire; use a Class D fire extinguisher, Do not use water.

Advice for firefighters:

As in any fire, wear a self-contained breathing apparatus in pressure-demand, MSHA/NIOSH (approved or equivalent), and full protective gear. Cover with Lith-X powder, Class D fire extinguisher, dry lithium chloride, or graphite powder. DO NOT USE WATER, moist sand, CO₂, Class ABC, or soda ash extinguisher.

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. If possible, a trained person should attempt to stop or contain the leak by neutralizing spill with soda lime or baking soda. 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

The batteries should not be opened, destroyed or incinerate, since they may leak or rupture and release to the environment the ingredients that they normally contained in the hermetically sealed container. Do not short circuit terminals, or expose to temperatures above the temperature rating of the battery, over charge the battery, forced over-discharge, throw to fire. Do not crush or puncture the battery, or immerse in liquids. Do not store in direct sunlight. Cells and batteries are not rechargeable batteries and should not be recharged. Applying pressure and deforming the battery may lead to disassembly followed by eye skin and throat irritation. Follow manufacturer recommendations regarding maximum recommended current and operating temperature range.

Conditions for safe storage, including any incompatibilities

Store in a cool, dry, well ventilated area which is subject to little temperature change. Do not place the battery near heating equipment, nor expose to direct sunlight for long periods. Elevated temperatures can result in shortened battery life and degrade performance. Keep batteries in original packaging until use and do not jumble them. Do not store batteries in high humidity environment for long periods.

Specific end uses

No data available

Section 8 - Exposure Controls/Personal Protection

Control parameters

Exposure limits:

CAS# 7719-09-7:

ACGIH: United States- ceiling concentration: 1 ppm

Australia- ceiling concentration: 1 ppm (4.9 mg/m³)

Belgium - TWA: 1 ppm (5 mg/m³)

Denmark- ceiling concentration: 1 ppm (5 mg/m³)

Korea- ceiling concentration: 1 ppm (5 mg/m³)

Netherlands- MAC- continuous 5 mg/m³

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New zealand- ceiling concentration: 1 ppm (4.9 mg/m³)

Russia-STEL: 0.3 mg/m³, Skin

United Kingdom- STEL: 1 ppm (4.9 mg/m³)

CAS# 7446-70-0:

ACGIH: United States- TWA: 2 mg(Al)/m³

Australia-TWA: 2 mg(Al)/m³

Belgium - TWA: 2 mg(Al)/m³

France - VME: 2 mg(Al)/m³

Korea- TWA: 2 mg(Al)/m³

New zealand- TWA: 2 mg(Al)/m³

Russia- TWA: 2 mg(Al)/m³;STEL: 6 mg(Al)/m³

CAS#1333-86-4:

Australia-TWA: 3 mg/m³

Belgium - TWA: 3.6 mg/m³

France - VME: 3.5 mg/m³

Japan-OEL: 1 mg/m³ (respirable dust); 4 mg/m³ (total dust)

Netherlands- MAC-TGG: 3.5 mg/m³

Russia- STEL: 4 mg/m³ STEL

United Kingdom-TWA: 3.5 mg/m³ STEL:7 mg/m³

CAS# 7440-02-0:

ACGIH: United States- TWA: 1.5 mg/m³ (inhalable)

Australia- TWA: 1 mg/m³

Belgium - TWA: 1 mg/m³

Finland-TWA: 0.1 mg/m³, Skin, Carcinogen

France - VLE: 1 mg/m³

Japan-OEL: 1 mg/m³, 2B carcinogen

Korea- TWA: 1 mg/m³

Netherlands- MAC-TGG: 1 mg/m³

Russia- STEL: 0.05 mg/m³, Carcinogen

CAS# 65997-17-3:

Netherlands- MAC: 10 mg/m³ (dust)

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

Appearance

Form: Cylindrical

Colour: Sliver

Odour

Odorless

Odour Threshold

No data available

pH

No data available

Melting point/freezing point

No data available

Initial boiling point and boiling range

No data available

Flash point

No data available

Evaporation rate

No data available

Flammability (solid, gas)

No data available

Upper/lower flammability or explosive limits

No data available

Vapour pressure

No data available

Vapour density

No data available

Relative density	No data available
Water solubility	Insoluble
Partition coefficient: n-octanol/water	No data available
Autoignition temperature	No data available
Decomposition temperature	No data available
Viscosity	No data available
Normal Voltage	3.6v
Capacitance	27Ah
lithium metal content	8.4g

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	Reaction of lithium with water: Hydrogen (H ₂), Lithium hydroxide (LiOH).Thermal decomposition over 150°C: Sulfur oxides, (SO ₂ , SO ₃), Sulfur chlorides (SCl ₂ , S ₂ Cl ₂), Chlorine (Cl ₂), Lithium oxide, Li ₂ O.Electrolyte with water: Hydrogen Chloride (HCl) and SO ₂ .

Section 11 - Toxicological Information

Information on toxicological effects

Acute toxicity:

CAS# 7719-09-7:

Inhalation, rat: LC50 = 500 ppm/1h;

CAS# 7439-93-2:

Intraperitoneal, mouse: LD50 = 1000 mg/kg;

CAS# 7446-70-0:

Intraperitoneal, rat: LD50 = 333 mg/kg;

Oral, mouse: LD50 = 1130 mg/kg;

Oral, rat: LD50 = 3450 mg/kg;

Skin, rabbit: LD50 > 2 gm/kg;

CAS#1333-86-4:

Oral, rat: LD50 > 15400 mg/kg;

Skin, rabbit: LD50 > 3000 mg/kg;

CAS# 7447-41-8:

Oral, mouse: LD50 = 1165 mg/kg;

Oral, rat: LD50 = 1530 mg/kg;

Oral, rabbit: LD50 = 800 mg/kg;

Skin, rabbit: LD50 = 1629 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

Thionyl chloride - 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.

Lithium metal - 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.

Aluminum chloride- 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.

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.

Lithium chloride - 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.

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

Stainless steel - The toxicological properties have not been thoroughly investigated.

Glass film - 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.

Epoxy resin- The toxicological properties have not been thoroughly investigated.

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 condition of use of the batteries, the electrode materials and the liquid electrolyte they contained are non-reactive provided the battery integrity is maintained. Risk of exposure exists only in case of mechanical, electrical or thermal abuse. Thus the batteries should not short circuit, recharge, puncture, incinerate, rush, immerse in water, force discharge, or expose to temperatures above the temperature range of the cell or battery. In these cases there is risk of fire or explosion. Internal contents are extremely hazardous. Leaking fluid is corrosive and dangerous upon inhalation. Battery may be explosive at higher temperatures, exposed to fire, charged, short circuited, or crushed.

Additional Information

RTECS#: CAS# 7719-09-7: XM5150000/ CAS# 7439-93-2: OJ5540000/ CAS# 7446-70-0: BD0525000/ CAS#1333-86-4: FF5800000 / CAS# 7447-41-8: OJ5950000 / CAS# 7440-02-0: QR5950000 / CAS# 12597-68-1: unlisted/ CAS# 65997-17-3: LK3651000

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

Shipping Name (UN Number) Lithium metal batteries (UN3090)
 Lithium metal batteries contained in equipment (UN3091)
 Lithium metal batteries packed with equipment (UN3091)

Hazard Class Class 9 (Miscellaneous)

Packing group II

Method	Organization	Special Provision
Air	IATA	Packing Instruction 968-970
Marine	IMDG	SP188
Rail/Road	RID/ADR	SP188

Their regulations are based on the UN Recommendations. Each special provision provides specifications on exceptions and packaging for lithium metal batteries shipping. A Shipper's Declaration for Dangerous Goods is not required when they meet the requirements of packing instruction 968 Section II or 969 Section II or part 970 Section II of IATA-DGR (54th Edition) or SP188 of IMO-IMDG Code (2010 edition) or SP188 of ADR (2013 edition).

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

CAS# 12597-68-1 is not listed on Canada's DSL and NDSL List. Other are listed on Canada's DSL and NDSL List.

US Federal

Toxic Substance Control Act (TSCA)

CAS# 12597-68-1 is not listed on the TSCA Inventory. Other chemicals in this product with known CAS numbers are listed on the TSCA Inventory.

Section 16 - Additional Information

MSDS Creation Date: Nov 04 , 2013

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.

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

Acute Tox. 4*: Acute toxicity, Oral (Category 4)

Acute Tox. 4*: Acute toxicity, Inhalation (Category 4)

Skin Corr.1A: Skin corrosion (Category 1A)

Skin Corr.1B: Skin corrosion (Category 1B)

Water-react. 1: Substances, which in contact with water, emit flammable gases (Category 1)

Carc. 2: Carcinogenicity(Category 2)

Skin Irrit. 2: Skin irritation (Category 2)

Eye Irrit. 2: Eye irritation(Category 2)

STOT RE 1: Specific target organ toxicity - repeated exposure(Category 1)

STOT SE 3: Specific target organ toxicity - single exposure(Category 3)

Skin Sens. 1: skin sensitization (Category 1)

H260 In contact with water releases flammable gases which may ignite spontaneously.

H302 Harmful if swallowed.

H314 Causes severe skin burns and eye damage.

H315 Causes skin irritation.

H317 May cause an allergic skin reaction.

H319 Causes serious eye irritation.

H332 Harmful if inhaled.

H335 May cause respiratory irritation.

H351 Suspected of causing cancer.

H372 Causes damage to organs through prolonged or repeated exposure.

EUH014 Reacts violently with water.

EUH029 Contact with water liberates toxic gas.

R14 Reacts violently with water.

R14/15 Reacts violently with water, liberating extremely flammable gases.

R20/22 Harmful by inhalation and if swallowed.

R22 Harmful if Swallowed.

R29 Contact with water liberates toxic gas.

R34 Causes burns.

R35 Causes severe burns.

R36/37/38 Irritating to eyes, respiratory system and skin.

R40 Limited evidence of a carcinogenic effect.

R43 May cause sensitization by skin contact.

R48/23 Toxic: danger of serious damage to health by prolonged exposure through inhalation.

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



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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)