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INSPECTION
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SAFETY DATA SHEET

Product Name: Li-ion Battery Pack 91231-Y 20V 4.0AH 80Wh

Effective Date: 2025-02-10

Compiler: Chen Yushuang

Checker: Liu Wanqing

Approver: Liu yun

Shanghai Institute of Chemical Industry Testing Co., Ltd.

Keystone Electrical (Zhejiang) Co., Ltd

SAFETY DATA SHEET

Li-ion Battery Pack 91231-Y 20V 4.0AH 80Wh

SECTION1 PRODUCT AND COMPANY IDENTIFICATION

Product name:	Li-ion Battery Pack 91231-Y 20V 4.0AH 80Wh
Company:	Keystone Electrical (Zhejiang) Co., Ltd
Address:	1158 South Longqian Street, Jinhua, Zhejiang, 321025, P.R.China
Email:	certificate@keystone-electrical.com
Fax:	86-579-89163682
Emergency Phone:	86-579-89163682

Recommend use of the chemical and restrictions on use: /

SDS Number:	2625011869
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SECTION2 HAZARDS IDENTIFICATION

The product is outside of the scope of GHS system.

Main Hazards:

Fire or Explosion Hazards:

Lithium ion battery contains flammable liquid electrolyte that may vent, ignite and produce sparks when subjected to high temperatures (>150℃), when damaged or abused (e.g., mechanical damage or electrical overcharging). May burn rapidly with flare-burning effect. May ignite other batteries in close proximity.

Health Hazards:

Contact with battery's electrolyte may be irritating to skin, eyes and mucous membranes. Fire will produce irritating, corrosive and/or toxic gases. Fumes may cause dizziness or suffocation.

SECTION3 INFORMATION ON INGREDIENTS

Product name: Li-ion Battery Pack 91231-Y 20V 4.0AH 80Wh

Ingredient	Concentration	CAS No.	EC No.
Lithium Nickel cobalt Aluminum oxide	<40%	193214-24-3	803-110-4

Graphite	<26%	7782-42-5	231-955-3
Ethylene carbonate	5-20%	96-49-1	202-510-0
Contains Electrolyte salt and solvents	<15%	/	/
Copper	3-15%	7440-50-8	231-159-6
Aluminum	2-10%	7429-90-5	231-072-3
Lithium hexafluorophosphate	0.05-5%	21324-40-3	244-334-7
Nickel	<5%	7440-02-0	231-111-4
Polyvinylidenfluoride	<1%	24937-79-9	607-458-6

SECTION4 FIRST-AID MEASURES

Skin Exposure:

If the internal battery's materials of an opened battery cell come into contact with the skin, remove the contaminated clothing and footwear, immediately flush with plenty of water for at least 20 minutes. If irritation persists, call a physician.

Eye Exposure:

In case of the internal battery's materials in contact with eyes, lift your eyelids immediately and rinse them with running water for more than 20 minutes. If irritation persists, call a physician.

Inhalation Exposure:

If inhaled the internal battery's materials, immediately remove to fresh air. If breathing is difficult, give oxygen. If not breathing, give artificial respiration. Call a physician.

Oral Exposure:

If swallowed the internal battery's materials, do not induce vomiting. Call a physician immediately.

Most Important Symptoms/Effects, Acute and Delayed:

No data available.

Indication of Immediate Medical Attention and Special Treatment Needed, If Necessary:

No data available.

SECTION5 FIRE FIGHTING MEASURES

Suitable Extinguishing Media:

Suitable:Water spray or regular foam.

Specific Hazards Arising from the Chemical:

May decompose upon combustion to generate irritating, corrosive or toxic fumes. Fumes may cause dizziness or suffocation.

Special Protective Action for Fire-fighters:

Protective Equipment: Wear self-contained breathing apparatus and protective clothing to prevent contact with skin and eyes. Fire-extinguishing work is done from the windward. Uninvolved persons should evacuate to a safe place.

SECTION6 ACCIDENTAL RELEASE MEASURES

Personal Precautions, Protective Equipment and Emergency Procedures:

Use personal protective equipment. Ensure adequate ventilation. Keep people away from and upwind of spill/leak. Entry to noninvolved personnel should be controlled around the leakage area by roping off. Remove all sources of ignition.

Environmental Precautions:

Avoid leakage enter the earth, ditches or waters. Avoid directly release the cleaning waste water into the environment.

Methods and Materials for Containment and Cleaning Up:

If the electrolyte leaks, use soil, sand or other non-combustible materials to absorb. The leaked batteries and dirty adsorbents should be placed in metal containers.

SECTION7 HANDLING AND STORAGE

Precautions for Safe Handling:

Operators should be trained and strictly abide by operating procedures. Wear appropriate protective clothing and safety gloves. Keep away from ignition sources, heat and flame. No smoking at working site. Handling is performed in a well ventilated place. Avoid disassembling the battery at will and reversing battery polarity within the battery assembly. Such batteries must be packed in inner packaging in such a manner as to effectively prevent short circuits and to prevent movement which could lead to short circuits. In case of leakage of the material in the battery, avoid directly contact with eyes and skin. Avoid inhalation. Incompatibilities: Strong oxidizing agents, Combustible materials and Corrosives.

Conditions for Safe Storage, Including Any Incompatibilities:

Store in a cool, dry, and well-ventilated area. Keep away from ignition sources, heat and flame. Incompatibilities: Strong oxidizing agents, Combustible materials and Corrosives. Such batteries must be packed in inner packaging in such a manner as to effectively prevent short circuits and to prevent movement which could lead to short circuits. Storage place should be equipped with appropriate varieties and quantities of fire fighting equipment and leakage emergency treatment equipment.

SECTION8 EXPOSURE CONTROL/PPE

Control Parameters:

GBZ 2.1-2019 Occupational Exposure Limits for Hazardous Agents in the Workplace - Part 1: Chemical Hazardous Agents:
Cobalt and its oxides (calculated as Co) : PC-TWA 0.05 mg/m^3; PC-STEL 0.1 mg/m^3, G2B, Sensitization
Soluble nickel compounds PC-TWA 0.5mg/m^3 Remarks: G1 (Nickel compounds), Sensitization
Nickel metal and insoluble compounds:PC-TWA 1mg/m^3 (Remarks: G2B(Metals and alloys))
Copper (calculated as Cu) : Copper dust PC-TWA 1 mg/m^3; Copper smoke PC-TWA 0.2 mg/m^3
Aluminum metal, aluminum alloy dust: PC-TWA 3 mg/m^3 (Total dust)
Graphite dust: PC-TWA 4 mg/m^3 (Total dust) ; PC-TWA 2 mg/m^3 (Inhalable dust)
ACGIH:
Copper: TLV-TWA 1 mg (Cu) /m^3 Dust, smoke; TLV-TWA 0.2 mg (Cu) /m^3 Smoke
Aluminum: TLV-TWA 1 mg/m^3
Graphite: TLV-TWA 2 mg/m^3
Nickel: TLV-TWA 1 mg/m^3

Appropriate Engineering Controls:

Mechanical exhaust required. Safety shower and eye bath.

Individual Protection Measures:

Eye/Face Protection:

Wear chemical safety glasses if needed.

Skin Protection:

Hand Protection: Wear safety gloves.
Body Protection: Wear appropriate protective clothing.

Respiratory Protection:

Wear government approved respirator if needed.

Thermal hazards:
No data available.

Other Protect:
No smoking, drinking and eating at working site. Wash thoroughly after handling.

SECTION9 PHYSICAL/CHEMICAL PROPERTIES

Appearance:	Black and red plastics cement shell
Odor:	Odorless
pH Value:	8-9
Solubility:	Partial soluble in water
Boiling Point, Initial Boiling Point and Boiling Range:	No data available
Melting Point/Freezing Point:	>300℃
Flash Point (Closed Cup):	No data available
Density/Relative Density:	No data available
Kinematic Viscosity:	No data available
Lower/Upper Explosion Limit/Flammability Limit:	No data available
Vapour Pressure:	No data available
Relative Vapor Density:	No data available
Partition Coefficient N-Octanol/Water(Log Value):	No data available
Autoingnition Temperature:	No data available
Decomposition Temperature:	No data available
Particle characteristics:	No data available
Flammability (Solid, Gas):	No data available

SECTION10 STABILITY AND REACTIVITY

Reactivity:
No data available.

Chemical Stability:
Stable under normal temperatures and pressures.

Possibility of Hazardous Reactions:
No data available.

Conditions to Avoid:

Avoid misoperation, exposure to heat and open flame. Avoid mechanical or electrical abuse and overcharge. Prevent short circuits. Prevent movement which could lead to short circuits.

Incompatible Materials:

Strong oxidizing agents, Combustible materials and Corrosives.

Hazardous Decomposition Products:

Carbon oxides, metal oxides, etc.

SECTION11 TOXICOLOGICAL INFORMATION

Acute Toxicity:

No data available.

Skin Corrosion/Irritation:

The electrolyte in the battery causes skin irritation.

Serious Eye Damage/Irritation:

The electrolyte in the battery causes eye irritation.

Respiratory Sensitization:

No data available.

Skin Sensitization:

No data available.

Carcinogenicity:

No data available.

Germ Cell Mutagenicity:

No data available.

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.

SECTION12 ECOLOGICAL INFORMATION

Toxicity:

No data available.

Persistence and Degradability:

No data available.

Bioaccumulative Potential:

No data available.

Mobility in Soil:

No data available.

Other Adverse Effects:

No data available.

SECTION13 DISPOSAL CONSIDERATION

Disposal Methods:

The disposal of discarded battery shall comply with the requirements of relevant laws, regulations, policies and standards such as the "Law of the People's Republic of China on the Prevention and Control of Environmental Pollution by Solid Waste" and "Technical Policy for the Prevention and Control of Waste Battery Pollution". Contact a licensed professional waste disposal service to dispose of wastes. Used battery being transported for disposal or reclamation should be carefully checked prior to shipment to ensure the integrity of each battery and its suitability for transport.

SECTION14 TRANSPORT INFORMATION

Only Lithium Battery during Transport:

The product has passed the test items of Manual of Tests and Criteria Section 38.3 and UN Model Regulations, SP188, 1.2m drop test. The total net weight of the Lithium batteries is less than 10 kg.

RID/ADR (2023 Edition) :

The product is not subject to the other provisions of RID/ADR according to special provision 188. According to 2.2.9.1.7 (g), Manufacturers and subsequent distributors of cells or batteries manufactured shall make available the test summary as specified in the Manual of Tests and Criteria, Part III, sub-section 38.3, paragraph 38.3.5.

IATA DGR (66th Edition) :

Hazard Class: 9
UN Number: UN3480
Proper Shipping Name: Lithium ion batteries
The product shall meet the General Requirements and section IB of Packaging Instruction 965.
The package has passed the stacking test required in PI 965 IB.
According to 3.9.2.6.1(g), Manufacturers and subsequent distributors of cells or batteries manufactured after 30 June 2003 shall make available the test summary as specified in the Manual of Tests and Criteria, Part III, sub-section 38.3, paragraph 38.3.5.

IMO IMDG CODE(2022 Edition):

The product is not subject to the other provisions of IMO IMDG Code according to special provision 188.
According to 2.9.4.7, Manufacturers and subsequent distributors of cells or batteries manufactured shall make available the test summary as specified in the Manual of Tests and Criteria, Part III, sub-section 38.3, paragraph 38.3.5.

SECTION15 REGULATORY INFORMATION

Domestic Regulations:

Only Lithium Battery during Transport:

Regulations Concerning Road Transportation Of Dangerous Goods(JT/T 617-2018):

UN Number: UN3480
Name and Description: Lithium ion batteries
The product has passed the test items of Manual of Tests and Criteria Section 38.3.
The product is not subject to JT/T 617-2018 according to special provision 188.

List of Dangerous Goods(GB 12268-2012):

UN Number: UN3480
Shipping Name: Lithium ion batteries
Packing Group: II
The product has passed the test items of Manual of Tests and Criteria Section 38.3. The product is not subject to GB 12268-2012 according to special provision 188.

List of Dangerous Goods by Rail(TB/T 30006-2022):

Number: 91045

Name of Product: Lithium ion batteries

The product has passed the test items of Manual of Tests and Criteria Section 38.3.

The product is not subject to TB/T 30006-2022 according to special provision 78,79.

International Regulations:

Directive (EU)2023/1542 and 2013/56/EU:

The label, disposal and recycling of the battery shall meet the requirements of EU Directive (EU)2023/1542 and 2013/56/EU.

ICAO TI:

1. Unless be exempted according to ICAO TI, the lithium ion cell/batteries (UN 3480, PI 965) and lithium metal cell/batteries (UN 3090, PI 968) are forbidden for carriage on passenger aircraft.
2. Unless be approved according to ICAO TI, Lithium ion cells/batteries (UN 3480, PI 965) must be offered for transport at a state of charge (SoC) not exceeding 30% of their rated design capacity.

SECTION16 OTHER INFORMATION

Preparation Date:

2025-02-10

Preparation Department:

Shanghai Institute of Chemical Industry Testing Co., Ltd. Tel(Fax):+86-21-52815377/31765555

Revision:

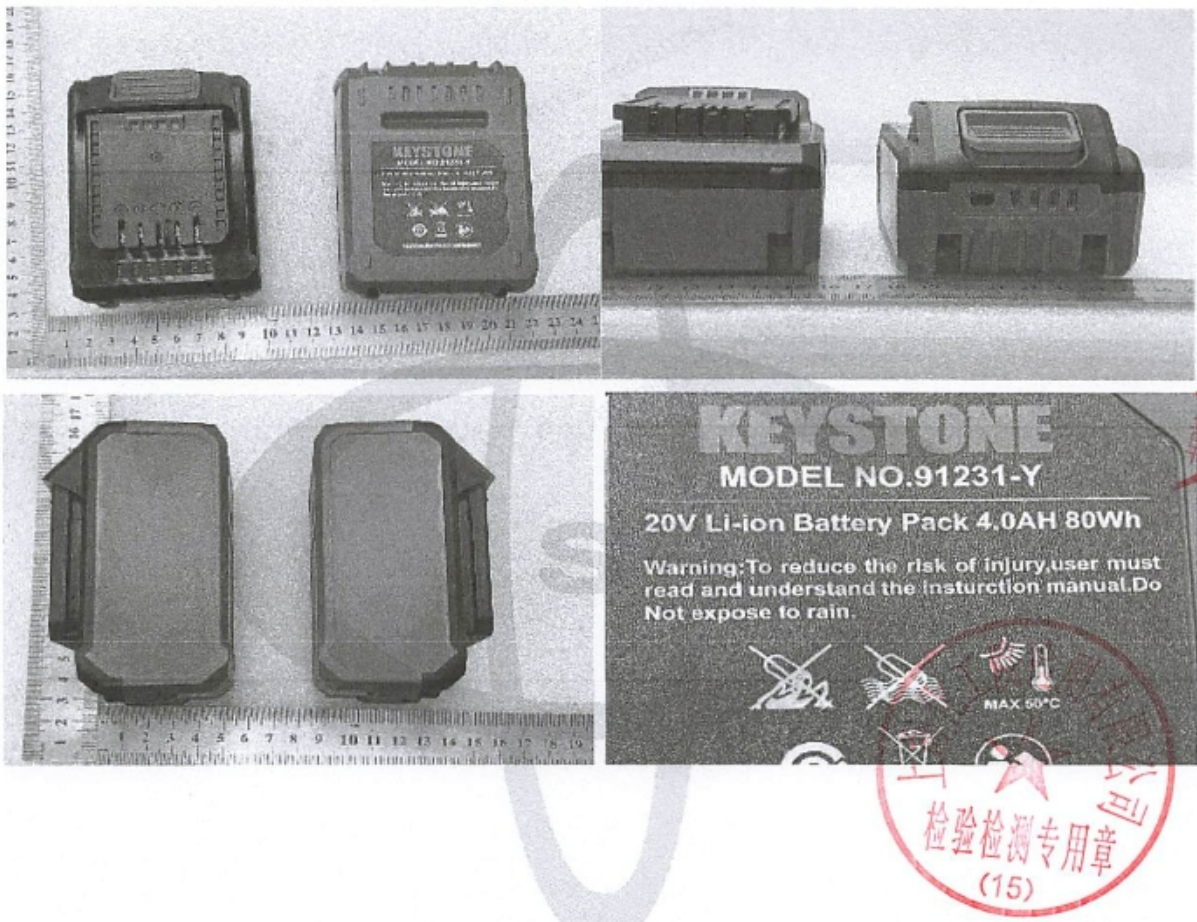
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Abbreviations and Acronyms:

CAS: Chemical Abstracts Service EC: European Commission PC-TWA: Permissible concentration-time weighted average PC-STEL: Permissible concentration-short term exposure limit TLV-TWA: Threshold limit value-time weighted average ACGIH: American Conference of Governmental Industrial Hygienists G1: Carcinogenic to humans G2B: Possibly carcinogenic to humans Sensitization: The substance may have allergenic effects RID: Regulations concerning the International Carriage of Dangerous Goods by Rail ADR: European Agreement concerning the International Carriage of Dangerous Goods by Road IATA DGR: International Air Transport Association Dangerous Goods Regulations IMO IMDG CODE: International Maritime Organization International Maritime Code for Dangerous Goods EmS: Emergency schedule EU: European Union ICAO TI: International Civil Aviation Organization Technical Instructions for the Safe Transport of Dangerous Goods by Air PI: Packaging Instruction

Other Information:

This SDS is only compiled for battery and based on the information such as ingredients provided by the applicant and our current knowledge. This SDS shall be used only as a guide. If the battery is used as a component in another product, the information in this SDS may not be applicable. The users of this SDS must make independent judgments on the correctness and completeness and then decide its suitability according to the actual situation. The users should take the relevant legal responsibilities for the consequences of use.



END OF REPORT