

SAFETY DATA SHEET

DLG (Shanghai) Electronic Technology Co., LTD

Model: NCM18650-220 Document No.:SDS-0001-A.0

SECTION 1 PRODUCT AND COMPANY IDENTIFICATION

Product Name:	Lithium ion Battery
Model:	NCM18650-220
Rated Capacity:	2200mAh
Nominal Voltage:	3.6V
Nominal Energy:	7.92Wh
Weight:	44.0±2.0g
Revision Date:	2019-01-21
Company:	DLG (Shanghai) Electronic Technology Co., LTD
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SDS Date:	2019-01-21

SECTION 2 HAZARDS IDENTIFICATION

Hazards Identification:

The battery has passed the items of UN model regulations, manual of test and criteria section UN 38.3

Emergency overview:

Caution: avoid contact and inhalation the electrolyte contained inside the battery.

SECTION 3 INFORMATION ON INGREDIENTS

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Product Name: Lithium ion Battery **Model:** NCM18650-220 **Rated Capacity:** 2200mAh **Nominal Voltage:** 3.6V

Ingredient	Concentration (%)	CAS No.
Cobalt lithium manganese nickel oxide	30~45	182442-95-1
Graphite	15~25	7782-42-5
Lithium hexaflurorophosphate (LiPF6)	1~3	21324-40-3
Copper foil	5~10	7440-50-8
Aluminum foil	2~8	7429-90-5
Steel, nickel and inert polymer	0.5~5	9003-55-8
Carbon black and others	0.5~2	1333-86-4
Poly (vinylidene fluoride) (PVDF)	0.1~2	24937-79-9

SECTION 4 FIRST AID MEASURES

Skin exposure:

If the internal battery materials of an opened battery cell come into contact with the skin, immediately flush with plenty water.

Eye exposure:

In case of the internal battery materials in contact with eyes, flush with copious amounts of water for at least 15 minutes. Assure adequate flushing by separating the eyelids with fingers. Cell a physician.

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Inhalation exposure:

If inhaled the internal materials of battery, remove immediately to fresh air and seek medical attention.

Oral exposure:

If swallowed the internal materials of battery, do not induce vomiting. Seek immediate medical attention.

SECTION 5 FIRE-FIGHTING MEASURES

Extinguishing media:

Suitable: Dry chemical, Sandy soil, carbon dioxide or appropriate foam.

Firefighting:

Protective Equipment: Wear self-contained breathing apparatus and protective clothing to with skin and eyes.

Specific hazards: Emit toxic fumes under fire conditions.

SECTION 6 ACCIDENTAL RELEASE MEASURES

Procedure of Personal Precaution:

If batteries show signs of leaking, avoid skin or eye contact with the material leaking from the battery. Use chemical resistant rubber gloves and non-flammable absorbent materials for clean up. Mix with inert material(e. g. dry sand, vermiculite) and transfer to sealed container for disposal.

SECTION 7 HANDLING AND STORAGE

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Handling:

Keep away from ignition sources, heat and flame. Such batteries must be packed in inner packages in such a manner as to effectively prevent short circuits and to prevent movement which could lead to short circuits. Avoid mechanical or electrical abuse. More than a momentary short circuit will generally reduce the battery service life. Avoid reversing battery polarity within the battery assembly. In case of a battery unintentionally be crushed, rubber gloves must be used to handle all battery components. Avoid contact with eyes, skin. Avoid inhalation. No smoking at working site. Materials to Avoid: Strong oxidizing agents, Corrosives.

Storage:

Store in cool, well—ventilated area. Keep away from ignition sources, heat and flame, Such batteries must be packed in inner packages in such a manner as to effectively prevent short circuits and to prevent movement which could lead to short circuits. Materials to Avoid: Strong oxidizing agents, Corrosives.

SECTION 8 EXPOSURE CONTROL/PPE

Engineering Controls:

Use ventilation equipment if available. Safety shower and eye bath.

Personal Protective Equipment:

Respiratory System: Not necessary under conditions of normal use.

Eyes: Not necessary under conditions of normal use.

Clothing: Wear appropriate protective clothing.

Hand: Safety gloves.

Other Protect:

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

SECTION 9 PHYSICAL/CHEMICAL PROPERTIES

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Appearance: Blue cylindrical plastics film shell

Odor: Odorless

Melting Point/°C: $\geq 300^{\circ}\text{C}$

Solubility: Partial slightly soluble in water

SECTION 10 STABILITY AND REACTIVITY

Stability:

Stable under normal temperatures and pressures.

Conditions to Avoid:

Avoid exposure to heat and open flame. Avoid mechanical or electrical abuse.

Prevent movement which could lead to short circuits.

Materials to Avoid:

Strong oxidizing agents, Corrosives.

Hazardous Polymerization:

Will not occur.

Hazardous Decomposition Products:

Metal oxides, CO, CO₂.

SECTION 11 TOXICOLOGICAL INFORMATION

Toxicity Data:

Not available.

Irritation Data:

The internal battery materials may cause irritation to eyes and skin.

SECTION 12 ECOLOGICAL INFORMATION

No data available.

SECTION 13 DISPOSAL CONSIDERATION

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Appropriate Method of Disposal of Substance:

Lithium batteries are best disposed of as a non—hazardous waste when fully or mostly discharged. Contact a licensed professional waste disposal service to dispose of large quantities materials.

SECTION14 TRANSPORT INFORMATION

The product has passed the test items of UN Model Regulations, Manual of Test and Criteria Section of UN 38.3 and UN Model Regulations, SP188, I. 2m drop test. The total net weight of the Lithium batteries is less than 10 kg.

TATA DGR (60th Edition):

Proper Shipping Name: Lithium ion batteries

UN Number: UN3480

Hazard Class: 9

The product shall meet the General Requirements and section 1B of Packaging Instruction 965 (IATA DGR).

IMO IMDG Code (2019 Edition):

Shipping Name: not relevant

Hazard Class: not relevant

UN Number: not relevant

Packing Group: not relevant.

The product is not restricted to IMO IMDG Code according to special provision 188.

SECTION 15 REGULATORY INFORMATION

ICAO:

1. Unless be exempted according to ICAO TI, the lithium ion cell/batteries (UN 3480, PI965) and lithium metal cell/batteries (UN 3090, PI 968) are forbidden for

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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.

3. A shipper is not permitted to offer for transport more than one (I) package prepared according to Section II of PI 965 and PI 968 in any single consignment. Not more than one (I) package prepared in accordance with Section II of PI 965 and PI 968 may be placed into an overpack.

4. Packages prepared according to Section II of PI 965 and PI 968 must be offered to the operator separately from other cargo and must not be loaded into a unit load device (ULD) before being offered to the operator.

SECTION16 OTHER INFORMATION

Date:

2019-01-21

Revision:

A.0

Other 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.