



Mieshi REFERENCE NO.: 201610001

## MATERIAL SAFETY DATA SHEET

### SECTION 1 - PRODUCT AND MANUFACTURER INFORMATION

Identification of the preparation : Lithium ion cell

Model: ICR18650-2200mAh (modification)

Product Type: Battery

Nominal Voltage/Voltage: 3.7V

Issue Date: Jan 1, 2016

Designated for recharge: Yes

#### HAZARD RATINGS\*

	<u>NPCA/HMIS</u>	<u>NFPA 704</u>	<u>Rating Key</u>
Health:	0	0	0=minimal
Flammability:	0	0	1=slight
Reactivity:	0	0	2=moderate
			3=serious
			4=severe

NFPA = National Fire Protection Association

NPCA/HMIS = National Paint & Coatings Association/ Hazardous Materials Identification System

### SECTION 2 - COMPOSITION / INFORMATION ON INGREDIENTS

None of the ingredients in this product is considered to be hazardous.



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Ingredient	Molecular formula	CAS No.	Weigh
Lithium Cobalt Oxide	LiCoO <sub>2</sub>	12190-79-3	40%
DNP	C <sub>6</sub> H <sub>6</sub> N <sub>4</sub> O <sub>4</sub>	119-26-6	6%
Copper	Cu	7440-50-8	9%
Aluminum	Al	7429-90-5	6%
Graphite Power	C	7782-42-5	18%
Propylene carbonate	C <sub>4</sub> H <sub>6</sub> O <sub>3</sub>	108-32-7	5.5%
Ethylene carbonate	C <sub>3</sub> H <sub>4</sub> O <sub>3</sub>	96-49-1	5.5%
Dimethyl carbonate	C <sub>3</sub> H <sub>6</sub> O <sub>3</sub>	616-38-6	5.5%
Lithium hexafluorophosphate	LiPF <sub>6</sub>	21324-40-3	0.5%
Polyvinylidene fluoride	-(C <sub>2</sub> H <sub>2</sub> F <sub>2</sub> ) <sub>n</sub> -	24937-79-9	1%

### SECTION 3 - HAZARDS IDENTIFICATION / EMERGENCY OVERVIEW

Nonflammable Solid

Inhalation: Product is not respirable.

Ingestion: Product cannot be ingested.

Skin Contact: No adverse effects expected

Eye Contact: No adverse effects expected .Product will not directly contact the eyes.

Carcinogenic: IARC- No, NTP - No, OSHA - No

PS: IARC = International Agency for Research on Cancer

NTP = National Toxicology Program

OSHA = Occupational Safety and Health Administration

Specific hazards:

Corrosive gas may be emitted during fire.

Special protective equipment for firefighters:

Respiratory protection: Respiratory equipment of a gas cylinder style or protection-  
against-dust mask

Hand protection: Protective gloves

Eye protection: Goggle or protective glasses designed to protect against liquid splashes

Skin and body protection: Protective clothes.

Production of MSDS proving UN Manual of Tests and criteria, Part 3, sub-section 38.3 is





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met.

## SECTION 4 - FIRST AID MEASURES

**Inhalation:** Make the victim blow his/her nose, gargle. Seek medical attention if necessary.

**Ingestion:** No first aid needed.

**Skin Contact:** Remove contaminated clothes and shoes immediately. Immediately wash extraneous matter or contact region with soap and plenty of water.

**Eye Contact:** Do not rub eyes. Immediately flush eyes with water continuously for at least 15 minutes. Seek medical attention.

## SECTION 5 - FIRE FIGHTING MEASURES

**Nonflammable Solid:** This product will not burn.

**Extinguishing Media:** Plenty of water, carbon dioxide gas, nitrogen gas, chemical powder fire extinguishing medium and fire foam.

**Special Fire - fighting Procedures or Equipment:**

When the battery burns with other combustibles simultaneously, take fire extinguishing method which corresponds to the combustibles. Extinguish a fire from the windward as much as possible.

**Hazardous Combustion Products:** None

**Unusual Fire /Explosion Hazards:** None

## SECTION 6 - ACCIDENTAL RELEASE MEASURES

Pick up and place in appropriate container

## SECTION 7 - HANDLING AND STORAGE

**Handling:** Accidental short circuit for a few seconds will not seriously affect the battery.

However, this battery is capable of delivering very high short circuit currents.

Prolonged short circuits will cause high temperature that can cause skin burns. Sources of short circuits include jumbled

batteries in bulk containers, metal jewelry, and metal covered tables or metal belts used for assembly of batteries into devices. If soldering or welding to

the battery is required, use of tab lead on the batteries is recommended. Do not open the battery. The negative electrode material may be inflammable.



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Should an individual cell from a battery become disassembled, spontaneous combustion of the negative electrode is possible. There can be a delay between exposure to air and spontaneous combustion.

**Storage:** Store in a cool, well ventilated area. Elevated temperature can result in reduced battery cycle life.

## SECTION 8 - EXPOSURE CONTROLS/PERSONAL PROTECTION

Respiratory protection: Respirator with air cylinder, dust mask

Hand protection: Protective gloves

Eye protection: Goggle or protective glasses designed to protect against liquid splashes

Skin and body protection: Working clothes with long sleeve and long trousers

## SECTION 9 - PHYSICAL AND CHEMICAL PROPERTIES

Appearance/State: Solid

Odor: None

State	Solid
pH	N/A
Vapor Pressure	N/A
Boiling Point	N/A
Specific Gravity	N/A
Density	N/A

## SECTION 10 - STABILITY AND REACTIVITY

**Stability:**

Product is stable under normal storage and handling conditions

**Conditions to avoid :**

High temperatures or incinerate. Deform, mutilate, crush, pierce, short circuit. expose over a long period to humid conditions

**Materials to avoid:**

Oxidizing agents, alkalis, water

**Hazardous reactions:**



Lithium metal reacts with water to produce highly flammable gasses



## SECTION 11 - TOXICOLOGICAL

Acute Toxicity:	
Inhalation:	Lung irritant
Ingestion:	Poisoning if swallowed
Eye Contact:	Eye irritant
Skin Contact:	skin irritant
Chronic Toxicity:	No data available
Sensitization:	No data available
Mutagenicity:	No data available
Carcinogenicity:	No data available
Reproductive Toxicity:	No data available
Other:	No data available

## SECTION 12 - ECOLOGICAL INFORMATION

Ecotoxicity:	No data available
Environmental Fate:	No data available
Environmental Degradation:	No data available
Soil Absorption/Mobility:	slowly bio-degradable

## SECTION 13 - DISPOSAL CONSIDERATIONS

**Waste Nature:**  
Chemical waste generators must determine whether a discarded chemical is classified as a hazardous waste

**Recovery and reuse:**  
Use standard landfill methods consistent with applicable Federal, State, Provincial and local laws





## SECTION 14 - TRANSPORTATION

International Transport regulations	1. International Air Transport Association (IATA) pursuant to Packing Instruction 965 -967 , Section II 2. International Maritime Dangerous Goods Code, IMDG 37-14 3. U.S. hazardous materials regulations pursuant to 49 CFR 173.185 and Special Provision A188
UN-No. ; IATA Packaging Instruction	3480 and 3481 Packing instruction 965-967 Section II

According to the classification of lithium cells and batteries of UN Nos.3480 and 3481. Lithium cells and batteries shall be subjected to the UN38.3 test 1 to test 8. Those products from PSE battery had passed the test. For a lithium ion cell, the Watt-hour rating is not more than 20Wh, For the lithium ion battery, the Watt-hour is not more than 100Wh. PACKING INSTRUCTION 966 ~ 967 Section II of IATA Dangerous Goods 57th Edition for transportation. So, it is not recognized as "DANGEROUS GOOD" and match the requirements of transportation by air or road or sea of lithium cells and batteries.

## SECTION 15 - REGULATORY

This regulatory information included here should not necessarily be considered all inclusive. None of the ingredients in this products are subjected to the reporting requirements of the CERCLA, the Clean Air Act and the Clean Water Act(US). This product is not formulated with, nor do the manufacturing or formulation process utilize any Class I or II Ozone depleting substance.

## SECTION 16 - OTHER INFORMATION

The recommendation and information contained in this MSDS have been compiled from sources believed to represent the most current information available when the MSDS was prepared .However, the manufacturer/ distributor of this product provides any warranty, guaranty representation as to the correctness or sufficiency of this information. If this product is to be used in large amount and /or an unusual manner, the user is obliged to determine what safety measures are appropriate, including the applicable and relevant workplace and environmental regulations pertaining to handling, use and disposal.

### Abbreviations used in this MSDS

CERCLA = Comprehensive Environmental Response Compensation and Liability Act

CFR = Code of Federal Regulations

