



# MATERIAL SAFETY DATA SHEET

Product: Rechargeable Li-Ion Cell

Type/Model: INR21700-50ME

Issue Date: 2023-02-03

Validity: 2023-02-03 2023-12-31

Compiler: \_\_\_\_\_

Reviewer: \_\_\_\_\_

Approver: \_\_\_\_\_



ABYSS Battery  
1920 West Bay Dr.  
Largo, FL 33770

# MATERIAL SAFETY DATA SHEET

## SECTION 1 - CHEMICAL AND COMPANY IDENTIFICATION

**Product:** Rechargeable Li-Ion Cell

**Type/Model:** INR21700-50ME

**Parameter:** 3.6V, 4900mAh, 17.64Wh

**Usage:**

- Used in Portable Equipment
- Used in Electric Vehicle
- Used in Energy Storage System

## SECTION 2 - HAZARDS IDENTIFICATION

### Classification:

This chemical is not considered hazardous by the Regulation (EC) No 1272/2008 (CLP). This product is an article which is a sealed battery and as such does not require an SDS per the Regulation (EC) No 1272/2008 (CLP) unless ruptured. The hazards indicated are for a ruptured battery.

**Acute toxicity – Oral** Category 4

**Acute toxicity - Dermal** Category 4

**Skin corrosion/irritation** Category 1B

**Serious eye damage/eye irritation** Category 2

**Skin sensitization** Category 1

**Carcinogenicity** Category 2

**Specific target organ toxicity (repeated exposure)** Category 1



ABYSS Battery  
1920 West bay Dr.  
Largo, FL 33770

# MATERIAL SAFETY DATA SHEET

Label elements

Signal Word

Danger

## Hazard Statements

H302	Harmful if swallowed.
H312	Harmful in contact with skin.
H332	Harmful if inhaled.
H318	Causes serious eye damage.
H317	May cause an allergic skin reaction.
H350	May cause cancer.
H371	May cause damage to organs.
H355	May cause respiratory irritation.



GHS08



GHS05



GHS07

This product is an article which contains a chemical substance. Safety information is given for exposure to the article as solid. Intended use of the product should not result in exposure to the chemical substance, this is a battery. In case of rupture: the above hazards exist.



ABYSS Battery  
1920 West Bay Dr.  
Largo, FL 33770

# MATERIAL SAFETY DATA SHEET

## Precautionary Statements – Prevention

P201	Obtain special instructions before use.
P202	Do not handle until all safety precautions have been read and understood.
P281	Use personal protective equipment as required.
P264	Wash face, hands and any exposed skin thoroughly after handling.
P272	Contaminated work clothing should not be allowed out of the workplace.
P210	Keep away from heat/sparks/open flames/hot surfaces – no smoking.
P270	Do not eat, drink or smoke when using this product.

## Precautionary Statements – Response

### P301+ P330+ P308

**If exposed or connected: Get medical advice/attention. Specific treatment (see supplemental first aid/instruction on this label).**

**Skin contact: If on skin, wash with plenty of soap and water. Take off contaminated clothing and washing, if skin irritation or rash occurs: get medical advice/attention if feel unwell.**

**Eye contact: If in eyes, rinse cautiously with water for several minutes, remove contact lenses, if present and easy to do, Continue rinsing. Call a POISON CENTER or doctor/physician if you feel unwell.**

**Inhalation: If inhalation or if breathing is difficult, remove victim to fresh air and keep at rest in a position comfortable for breathing. If experiencing respiratory symptoms: Call a POISON CENTER or doctor/physician if you feel unwell.**

**Ingestion: If swallowed: rinse mouth immediately, do not induce vomiting and call a POISON CENTER or doctor/physician if you feel unwell.**



ABYSS Battery  
1920 West Bay Dr.  
Largo, FL 33770

# MATERIAL SAFETY DATA SHEET

## Precautionary Statements – Storage

P405	Store locked up
------	-----------------

## Precautionary Statements – Disposal

P501	Dispose of contents/container to an approved waste disposal plant.
------	--

Hazards not otherwise classified (HNOC)	Not applicable
---	----------------

### Other information:

Harmful to aquatic organisms, may cause long-term adverse effects in the aquatic environment.

**Interactions with other chemicals:** Use of alcoholic beverages may enhance toxic effect.

## SECTION 3 - COMPOSITION/INFORMATION ON INGREDIENT

Ingredient	Molecular formula	CAS No. CAS	Weigh
Lithium Nickel Cobalt Manganese Oxide	$\text{LiNi}_x\text{Co}_y\text{Mn}_z\text{O}_2$	182442-95-1	36.61%
Graphite	$\text{C}_{24}\text{X}_{12}$	7782-42-5	16.67%
Silicon Monoxide	SiO	10097-28-6	1.65%
Lithium Hexafluorophosphate	$\text{LiPF}_6$	21324-40-3	1.63%
Polyvinylidene Fluoride	$(\text{C}_2\text{H}_2\text{F}_2)_n$	24937-79-9	0.53%
Iron	Fe	7439-89-6	19.61%
Copper	Cu	7440-50-8	3.36%
Aluminum	Al	7429-90-5	8.51%
Nickel	Ni	7440-02-0	0.32%
Carbon Black	C	1333-86-4	0.46%



ABYSS Battery  
1920 West Bay Dr.  
Largo, FL 33770

# MATERIAL SAFETY DATA SHEET

## SECTION 3 - COMPOSITION/INFORMATION ON INGREDIENT (cont)

Ingredient	Molecular formula	CAS No. CAS	Weigh
Styrene-Butadiene Rubber	$(C_8H_8C_4H_6)_x$	9003-55-8	0.57%
Carboxymethyl Cellulose Sodium	$C_6H_7O_2(OH)_2CH_2COON_a$	9004-32-4	0.19%
Ethylene Carbonate	$C_3H_4O_3$	96-49-1	8.56%
Dimethyl Carbonate	$C_3H_6O_3$	616-38-6	8.56%
Propylene Carbonate	$C_4H_6O_3$	108-32-7	8.56%
Ethyl Methyl Carbonate	$C_4H_8O_3$	623-53-0	8.56%
Polyethylene	$(C_2H_4)_n$	9002-88-4	0.20%
Polyethylene Terephthalate	$(C_{10}H_8O_4)_n$	25038-59-9	1.13%

## SECTION 4 - FIRST AID MEASURES

### Eye Exposure:

In case of contact with eyes, flush with copious of water for at least 15 minutes. Assure adequate flushing by separating the eyelids with fingers. Call a physician

### Skin Exposure:

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

### Inhalation Exposure:

If inhaled the internals of battery vomiting. Seeking Immediate medical attention.

### Ingestion Exposure:

If swallowed, seek medical attention. Do not induce vomiting unless directed to do so by medical personnel.



ABYSS Battery  
1920 West Bay Dr.  
Largo, FL 33770

# MATERIAL SAFETY DATA SHEET

## SECTION 5 - FIRE FIGHTING MEASURES

**Danger characteristic:** Exposure to excessive heat can cause venting of the liquid electrolyte. Battery may burst and release hazardous decomposition products when exposed to a fire situation.

**Hazardous combustion products:** Corrosive and toxic gas may be emitted during fire.

**Fire-Fighting method:** The staff must equip with filtermask (full mask) or isolated breathing apparatus. The staff must wear the clothes which can defense the fire in the upwind direction. Remove the container to the open space as soon as possible. Spray water on the containers in the fireplace to keep them cool until finish extinguishment.

**Fire-Fighting media :**Plenty of water, dry chemical powder or carbon dioxide

## SECTION 6 - ACCIDENTAL RELEASE MEASURES

**Emergency treatment:**

If the battery material is released, remove personnel from area until the batteries cool down and fumes dissipate.

Provide maximum ventilation to clear out hazardous gases and avoid skin and eye contact or inhalation of vapors.

Remove spilled liquid with absorbent and incinerate waste.



ABYSS Battery  
1920 West Bay Dr.  
Largo, FL 33770

# MATERIAL SAFETY DATA SHEET

## SECTION 7 - HANDLING AND STORAGE

### Handling

1. Do not allow battery terminals to contact each other, or contact with other metals.
2. Do not put the cell or battery into a fire or heat it. Do not solder the cell directly. Do not use or leave the cell or battery in a place near fire or heaters.
3. Do not expose the battery to excessive physical shock or vibration.
4. Do not immerse, throw, and wet a battery in water.
5. Short-circuiting should be avoided. Short circuit will reduce the life of the battery and can lead to ignition of surrounding materials. Physical contact with to short-circuited battery can cause skin burn.
6. The batteries should not be opened, destroyed or incinerate, since they may leak or rupture and release to the environment the ingredients that they contain in the hermetically sealed container.
7. Place the cell beyond the child packing and container.
8. Do not connect the battery directly to an electric outlet or cigarette socket in a car.
9. Be sure to use the specified charger for battery, and follow the charging instructions correctly.
10. Do not mix old and new batteries together, neither with Ni-Cd, dry batteries or another manufacturer batteries or product.

### Storage:

1. Batteries should be separated from other materials and stored in a noncombustible, well ventilated, sprinkler-protected structure with sufficient clearance between walls and battery stacks.
2. Keep the sample in the cool, dry and well-ventilated place (temperature: -20~30 oC, humidity: 45~85%). Do not exposure to direct sunlight for long periods. Keep away from fire and heating sources. Don't keep the samples with oxidizer and acid. (20~30°C:45~85%)
3. Equip with relevant types and quantities of the extinguishment instruments. The storage place should be equipped with suitable shelter materials for divulgence handling.
4. For rechargeable battery, charge the battery every 6 months to the amount specified by the manufacture, even if the battery is not used.



ABYSS Battery  
1920 West Bay Dr.  
Largo, FL 33770



# MATERIAL SAFETY DATA SHEET

## SECTION 8 - EXPOSURE CONTROLS, PERSONAL PROTECTION

### Engineering Control:

Keep away from heat and open flame. Supply with sufficient partial air exhaust. Store in a cool, dry place.

### Respiratory Protection:

Not necessary under conditions of normal use. Wear self-contained breathing filtermask if the density exceed in the air. Wear breathing apparatus under the condition of emergency rescue or evacuation.

### Eyes Protection:

Not necessary under conditions of normal use. Wear protective glasses if handling a leaking or ruptured battery.

### Skin and Body Protection:

Not necessary under conditions of normal use. Wear fireproofing, gas defense clothes in case of handling a leaking or ruptured battery.

### Hands Protection:

Not necessary under conditions of normal use. Wear chemical resistant rubber glove.

### Other Protections:

No smoking, dining and drinking water in the workplace. Keep good habit of hygiene.

## SECTION 9 - PHYSICAL AND CHEMICAL PROPERTIES

Appearance :	Brown
Physical state:	Solid
Form:	Cylindrical
Odor	Odorless
Solubility :	Insoluble in water



ABYSS Battery  
1920 West Bay Dr.  
Largo, FL 33770

# MATERIAL SAFETY DATA SHEET

## SECTION 10 - STABILITY AND REACTIVITY

<b>Stability</b>	Stable under normal temperature and pressure.
<b>Distribution of Ban</b>	Explosives, inflammables, strong oxidants and corrosives.

### Conditions to Avoid

Fire source, heating source, disassemble, external short circuit, crushes, deformation, high temperature above 100°C, direct sunlight and high humidity, immerse in water or overcharge. 100°C

### Hazardous Polymerization:

Will not occur.

### Hazardous Decomposition Products:

Metal oxides, carboxyl compound such as CO, CO<sub>2</sub>, etc.

## SECTION 11 - TOXICOLOGICAL INFORMATION

**Acute Toxicity:** No information is available.

**Sub-acute and Chronic Toxicity:** No information is available.

**Irritation Data:** The internal battery materials may cause irritation to eyes and skin.

**Sensitization:** The liquid in the battery may cause sensitization to some person.

**Mutagenicity:** No information is available.

**Carcinogenicity:** Cobalt and Cobalt compounds are considered to be possible human carcinogen(s).

**Others:** Since the materials in this battery are sealed in the can, the potential for exposure to the components of the battery is negligible, when the battery is used as directed. However technical or electrical abuse of the battery may result in the release of battery contents.



ABYSS Battery  
1920 West Bay Dr.  
Largo, FL 33770

# MATERIAL SAFETY DATA SHEET

## SECTION 12 - ECOLOGICAL INFORMATION

<b>Eco-toxicity:</b>	No information is available.
<b>Biodegradable :</b>	No information is available.
<b>Mobility in soil:</b>	No information is available.
<b>Bioconcentration or biological accumulation:</b>	No information is available.
<b>Other harmful effects:</b>	Don't abandon the battery into environment, may cause water or soil pollution.

## SECTION 13 - DISPOSAL CONSIDERATIONS

### Appropriate Method of Substance:

The battery should be completely discharged prior to disposal in order to prevent short circuit. The battery contains recyclable materials, and it is suggested recycle. Refer to National or Local regulations before handling. Disposal of the battery should be performed by permitted, professional disposal firms knowledgeable in National or Local regulations of hazardous waste treatment and hazardous waste transportation.

## SECTION 14 - TRANSPORT INFORMATION

### General packaging requirement:

1. The cells or batteries must be protected so as to prevent short circuits.
2. The cells or batteries or equipment must be packed in suitable strong outer packaging. If batteries contained in equipment, equipment must be secured against movement within the outer packaging and be packed so as to prevent accidental activation.



ABYSS Battery  
1920 West Bay Dr.  
Largo, FL 33770

# MATERIAL SAFETY DATA SHEET

## SECTION 14 - TRANSPORT INFORMATION [Cont]

Air transportation, according to IATA-DGR 64th Edition (Effective 1 January-31December 2023)IATA-DGR 64 (2023 1-1-12-31)

**UN Number + PSN UN+** UN 3480, LITHIUM ION BATTERIES UN 3480,

**Hazard Class** Class 9

**Packaging requirement** Strong package, packaging according to PACKING INSTRUCTION 965, section IB

Sea transportation, according to IMO IMDG Code (Amend 40-2020)

**UN Number + PSN UN** UN 3480, LITHIUM ION BATTERIES UN 3480

**Hazard Class** Not restricted, according to sp188

**Packaging instruction** Strong package, Packaging in accordance to corresponding requirements of sp188

**EmS No.** F-A, S-I

Road transportation, according to ADR-2021

**UN Number + PSN UN** UN 3480, LITHIUM ION BATTERIES UN 3480

**Hazard Class** Not restricted, according to sp188

**Packaging instruction** Strong package, Packaging in accordance to corresponding requirements of sp188



ABYSS Battery  
1920 West Bay Dr.  
Largo, FL 33770

# MATERIAL SAFETY DATA SHEET

## SECTION 15 - REGULATORY INFORMATION

Dangerous Goods Regulation (DGR)  
Recommendations on the Transport of Dangerous Goods Model Regulations International Maritime  
Dangerous Goods (IMDG)  
Occupational Safety and Health Act (OSHA)  
Toxic Substances Control Act (TSCA)  
Code of Federal Regulations (CFR)  
Technical Instructions for the Safe Transport of Dangerous Goods  
California Proposition 65  
Superfund Amendments and Reauthorization Act Title III (302/311/312/313) (SARA) Globally Harmonized System of Classification and Labeling of Chemicals(GHS)  
In accordance with all Federal, State and local laws.

## SECTION 16 - ADDITIONAL INFORMATION

### Accordinging standard

GB/T 16483-2008 Safety data sheet for chemical products Content and order of sections ISO  
11014:2009(E) Safety data sheet for chemical products – Content and order of sections

### Guangzhou MCM Certification & Testing Co., Ltd.

Building 2 No. 45 Zhong Er Section of Shiguang Road, Zhongcun Street, Panyu District, Guangzhou  
City, Guangdong Province, China.

45 2

The above information is believed to be correct but does not purport to be all inclusive and shall be used only as a guide. We make no warranty of merchantability or any other warranty express or implied, with respect to such information, and we assume no liability resulting from its use. Users should make their own investigation to determine the suitability of the information for their particular purposes. In no way shall we be liable for any claims, losses, or damage of any third party or for lost profits or any special, indirect, consequential or exemplary damages arising from using the above information.



ABYSS Battery  
1920 West Bay Dr.  
Largo, FL 33770

# MATERIAL SAFETY DATA SHEET

## Sample Reference Photo

Model: INR21700-50ME



ABYSS Battery  
1920 West Bay Dr.  
Largo, FL 33770