



**Intec Industries Co., Ltd.**  
Room 2703, Well Tech Centre  
9 Pat Tat Street, San Po Kong, Hong Kong  
Tel : (852) 2885 1100  
Fax : (852) 2947 0588

## SAFETY DATA SHEET

### 1. Product and Company Identification

#### Product identifier

**Product Name:** Rechargeable Lithium Iron Phosphate cell or battery pack

#### Other means of identification

**Synonyms:** None

#### Recommended use of the chemical and restrictions on use

**Recommended Use:** Lithium Ion (LiIon) Battery

**Uses advised against:** No information available

#### Details of the supplier of the safety data sheet

**Supplier Name:** Intec Industries Co., Ltd.

**Supplier Address:** Rm 2703, Well Tech Centre  
9 Pat Tat Street  
Sanpokong  
Hong Kong

**Supplier Phone Number:** Phone: 852 28851100  
Contact Phone: 852 60530300

**Supplier Email:** [intecind@biznetvigator.com](mailto:intecind@biznetvigator.com)

**Emergency telephone number:** 852 60530300

### 2. Hazards Identification

#### **Emergency Overview**

In case of rupture harmful by inhalation, in contact with skin and if swallowed.

Corrosive.

The product causes burns of eyes, skin and mucous membranes.

May produce an allergic reaction.

May cause adverse kidney effects.

**Appearance:** Metallic

**Physical state:** Solid

**Odor:** Odorless

**OSHA Regulatory Status:** This product is an article which contains a sealed battery and as such does not require an SDS per the OSHA Hazard Communication Standard. While this material is not considered hazardous by the OSHA Hazard Communication Standard (29 CFR 1910.1200), this SDS contains valuable information critical to the safe handling and proper use of the product. This SDS should be retained and available for employees and other users of this product.



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**Potential Health Effects**

**Principle Routes of Exposure** Eye contact. Skin contact.

**Acute Toxicity:**

**Eyes** May cause irritation.  
**Skin** No known effect based on information supplied.  
**Inhalation** No known effect based on information supplied May be harmful if inhaled  
**Ingestion** No hazard from product as supplied.

**Chronic Effects:**

Avoid repeated exposure. Prolonged exposure may cause chronic effects and may cause adverse liver effects.

**Aggravated Medical Conditions:**

None known Pre-existing eye disorders. Kidney disorders. Liver disorders. Skin disorders. Respiratory disorders. Central Vascular System (CVS).

**Environmental Hazard:**

See Section 12 for additional Ecological Information Very toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment.

**3. Compositions/ Information**

CAS No.	Chemical	Weight/ Percent *
7782-42-5	Graphite	12 – 14
7429-90-5	Aluminum foil	3 – 5
7440-50-8	Copper	8 – 10
24937-79-9	1,1-Difluoroeth	1 – 1.5
21324-40-3	Lithium Hexafluorophosphate	2.5 – 3
623-53-0	Carbonate	10 – 12
616-38-6	Dimethyl	10 – 12
94-49-1	Ethylene	12
15365-14-7	Phosphoric acid, iron (2+) Lithium salt (1:1:1)	28 – 32

\* The exact percentage (concentration) of composition has been withheld as a trade secret.

Weight of Lithium metal per cell: 0g.

**4. First Aid Measures**

**General Advice:**

First aid is upon rupture of sealed battery. Show this safety data sheet to the doctor in attendance. Immediate medical attention is required.

**Eye contact:**

Rinse immediately with plenty of water, also under the eyelids, for at least 15 minutes. Keep eye wide open while rinsing. Remove contact lenses, if present and easy to do. Continue rinsing. Do not rub affected area. Seek immediate medical attention/advice.

**Skin contact:**

Wash off immediately with soap and plenty of water for at least 15 minutes. Get medical attention if irritation develops and persists. Remove and isolate contaminated clothing and shoes.

**Inhalation:**

Remove to fresh air. Get medical attention immediately if symptoms occur. If not breathing, give artificial respiration. If breathing is difficult, (trained personnel should) give oxygen.



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**Ingestion:** Rinse mouth immediately and drink plenty of water. Never give anything by mouth to an unconscious person. Do NOT induce vomiting. Call a physician.

**Notes to Physician:** Treat symptomatically.

**Self-protection of the first aider:** Avoid contact with skin, eyes or clothing. Use personal protective equipment as required. Wear personal protective clothing (see section 8). Ensure that medical personnel are aware of the material(s) involved, take precautions to protect themselves and prevent spread of contamination.

## 5. Fire-Fighting Measures

**Flammable Properties:** This article contains flammable electrolytes and therefore can cause a fire hazard if ruptured and chemicals are leaked out. May burn rapidly with flare-burning effect.

**Flash Point:** Not determined.

**Suitable Extinguishing Media:** Use extinguishing measures that are appropriate to local circumstances and the surrounding environment. Dry chemical, CO<sub>2</sub>, water spray or regular foam. Move containers from fire area if you can do it without risk.

**Large Fire:** Move containers from fire area if you can do it without risk.

**Hazardous Combustion Products:** Carbon oxides.

**Explosion Data**  
**Sensitivity to Mechanical Impact:** Not sensitive.

**Sensitivity to Static Discharge:** Not sensitive.

**Protective equipment and precautions for firefighters:** Move containers from fire area if you can do it without risk.

**NFPA Health Hazards 1      Flammability 0      Stability 0      Physical and Chemical Hazards -**

## 6. Accidental Release Measures

**Personal precautions:** Avoid contact with skin, eyes or clothing. Ensure adequate ventilation. Use personal protective equipment as required. Evacuate personnel to safe areas. ELIMINATE all ignition sources (no smoking, flares, sparks or flames in immediate area). Do not touch or walk through spilled material.

**Environmental precautions:** Prevent further leakage or spillage if safe to do so.





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- Methods for containment:** Prevent further leakage or spillage if safe to do so. Absorb with earth, sand or other non-combustible material and transfer to containers for later disposal.
- Methods for cleaning up:** Pick up and transfer to properly labeled containers.
- Other Information:** Refer to protective measures listed in Sections 7 and 8. ELIMINATE all ignition sources (no smoking, flares, sparks or flames in immediate area).

## **7. Handling and Storage**

- Handling:** In case of rupture. Handle in accordance with good industrial hygiene and safety practice. Avoid contact with skin, eyes or clothing. Do not eat, drink or smoke when using this product. Take off contaminated clothing and wash before reuse.
- Storage:** Keep containers tightly closed in a dry, cool and well-ventilated place. Store locked up. Keep out of the reach of children.

## **8. Exposure Control/ Personal Protection**

### **8.1 Exposure Control Measures**

- Exposure Limit Values:** Airborne exposures to hazardous substances are not expected when the cells or batteries are used for their intended purposes. Exposure standards are not applicable to the sealed articles.
- Biological Monitoring:** Not applicable.
- Control Banding:** Not applicable.
- Recommended monitoring Procedures:** Follow standard monitoring procedures.
- Derived no-effect level (DNEL):** Not applicable.
- Derived minimal effect level (DMEL):** Not applicable.
- Predicted no-effect concentrations (PNECs):** Not applicable.

### **8.2 Engineering Controls**

**Engineering Controls:**

- Special ventilation is not required when using these products in normal use scenarios. Ventilation is required if there is leakage from the cell or battery.
- Individual Protection Measures Eye and Face protection:** Eye protection is not required when handling cells or batteries during normal use. Wear safety glasses/goggles if handling a leaking or ruptured cell or battery.



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- Skin (Hand) protection:** Hand protection is not required when handling the cell or battery during normal use. PVC gloves are recommended when dealing with a leaking or ruptured cell or battery.
- Skin (clothing) protection:** Skin protection is not required when handling the cell or battery during normal use. Wear long sleeved clothing to avoid skin contact if handling a leaking or ruptured cell or battery. Soiled clothing should be washed with detergent prior to re-use.
- Respiratory protection:** During routine operation, a respirator is not required. However, if dealing with an electrolyte leakage and irritating vapors are generated, an approved half face inorganic vapor and gas/acid/particulate respirator is required.
- Thermal Protection:** Not applicable.
- Other Protective Equipment:** Have a safety shower or eye wash station readily available.
- Hygiene Measures:** Do not eat, drink or smoke in work areas. Avoid storing food, drink or tobacco near the product. Practice and maintain good housekeeping.
- Environmental exposure controls:** Avoid release to the environment.

**9. Physical and Chemical Properties**

Appearance	Metallic.	Odor	Odorless.
Odor Threshold	No information available	Physical state	Solid
pH	No information available	Autoignition Temperature	No information available
Flash Point	No information available	Boiling point / boiling range	No information available
Decomposition temperature	No information available	Flammability Limits in Air	No information available
Melting Point/Range	No information available	Solubility	No information available.
Explosion Limits	No information available	Vapor pressure	No data available
Water Solubility	Insoluble		
Evaporation Rate	No information available		
Vapor density	No data available		

**10. Stability and Reactivity**

- Stability:** Stable under recommended storage conditions.
- Incompatible Products:** Strong acids. Strong oxidizing agents. Strong bases.
- Conditions to avoid:** None known based on information supplied.
- Hazardous Decomposition Products:** None known based on information supplied.
- Hazardous Polymerization:** Hazardous polymerization does not occur.



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**11. Toxicological Information**

**11.1 Acute Toxicity**

**Product Information:** Product does not present an acute toxicity hazard based on known or supplied information.

**LD50 Oral VALUE:** In case of rupture:  
54518.52 mg/kg (rat) Estimated  
**LC50 Inhalation (DUST) VALUE:** 6095.238 mg/L (mist) (dust) mg/m<sup>3</sup> Estimated

**Inhalation:** Specific test data for the substance or mixture is not available. May cause irritation of respiratory tract.

**Eye contact:** Specific test data for the substance or mixture is not available. Expected to be an irritant based on components. Severely irritating to eyes. Causes serious eye damage. May cause burns. May cause irreversible damage to eyes.

**Skin contact:** Specific test data for the substance or mixture is not available. Expected to be an irritant based on components. Irritating to skin. Prolonged contact may cause redness and irritation.

**Ingestion:** Specific test data for the substance or mixture is not available. Ingestion may cause irritation to mucous membranes. Ingestion may cause gastrointestinal irritation, nausea, vomiting and diarrhea.

**11.2 Chronic Toxicity**

**Chronic Toxicity:** Avoid repeated exposure. Prolonged exposure may cause chronic effects. May cause adverse liver effects.

**Target Organ Effects:** Central Vascular System (CVS). Eyes. Kidney. Liver. Respiratory system. Skin. Lungs.

**12. Ecological Information**

**Ecotoxicity:** The sealed cell or battery does not pose an Ecotoxicity hazard. Cells or batteries under normal use conditions pose no ecotoxicity hazard. In the case of a broken or damaged cell or battery and leakage of the electrolyte, it will react with water and potentially cause damage to flora and fauna if not disposed of properly. See Section 13 of this SDS for proper disposal considerations.

**Persistence and degradability:** There is currently no data available.

**Bio accumulative potential:** There is currently no data available.  
Partition coefficient n-octanol/water (log Kow): Not applicable.  
Bio concentration factor (BCF): Not available.

**Mobility in soil:** There is currently no data available.





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**Results of PBT and vPvB assessment:**

Not a PBT or vPvB substance or mixture.

**Other adverse effects:**

Solid cells and batteries released into the natural environment will slowly degrade and may release harmful or toxic substances. Cells and batteries are not intended to be released into water or on land but should be disposed or recycled according to local regulations. See section 13 of this SDS for Disposal Considerations.

**Links to other Sections:**

For information on accidental release, see Section 6 of this SDS.  
For information on disposal, see Section 13 of this SDS.  
For information on transport hazard classes, see Section 14 of this SDS.

**13. Disposal Considerations**

**Disposal methods:**

Should not be released into the environment.

**Contaminated Packaging:**

Do not reuse empty containers.

**California Hazardous Waste Codes:** 141

This product contains one or more substances that are listed with the State of California as a hazardous waste.

**13.1 Waste treatment methods:** Cell and battery recycling is encouraged. Cells and batteries should not be released into the environment, do **NOT** dump into any sewers, on the ground or into any body of water. Do not dispose of in fire. Used cells and batteries should be stored in their original packaging, a plastic bag or with their terminals/contacts taped, to minimize the potential for short-circuiting to occur. Cells and batteries should be fully discharged before being sent for recycling. Do not store used cells or batteries near heat sources, chemicals or food. Do not store or transport used lithium-ion cells or batteries with lead acid batteries as they have different regulatory requirements. Do not break open or damage lithium-ion cells or batteries prior to disposal. Care should be taken at all times to ensure that used cells or batteries are not damaged during storage or transport. Store material for disposal as indicated in Section 7 Handling and Storage.

**13.2 Classification of the waste to comply with Waste Regulations**

**USA:**

Spent cells and batteries are not considered hazardous waste. Cells and batteries involved in a fire may be considered to be hazardous waste. Dispose of in accordance with local, state and federal laws and regulations. Consult universal/hazardous waste regulations for further information regarding disposal of spent batteries. If a cell or battery is leaking/broken open, consult hazardous waste regulations under US Environmental Protection Agency's Resource Conservation and Recovery Act (RCRA). Also, consult state and local regulations for further disposal requirements.



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- Canada:** Spent cells and batteries are not considered hazardous waste. Cells and batteries involved in a fire may be considered to be hazardous waste. Dispose of in accordance with local, provincial and federal laws and regulations. Consult the Canadian Environmental Protection Act for additional details.
- EU:** Waste must be disposed of in accordance with relevant EC Directives and national, regional and local environmental control regulations. For disposal within the EC, the appropriate code according to the European Waste Catalogue (EWC) should be used.  
**EU Waste Code:** 16 06 05 – other batteries and accumulators.
- Japan:** Recycling of spent lithium-ion cells and batteries is regulated by the Wastes Disposal and Public Cleaning Law and the Law for Promotion of Effective Utilization of Resources, cells and batteries should be recycled at a JBRC (Japan Battery Recycling Center) approved facility.
- Australia:** Spent cells and batteries must be taken for recycling or disposal at an appropriate collection depot by suitably licensed contractors in accordance with government regulations.

**13.3 Classification of the waste to comply with Transport Regulations:**

Spent lithium-ion cells and batteries are not considered hazardous waste. Lithium-ion cells and batteries involved in a fire may be considered to be hazardous waste and should be classified as such. Damaged lithium-ion cells and batteries are explicitly prohibited from transport by air.

**13.4 Classification of Packaging materials:**

Unsoiled excess packaging should be disposed of according to any applicable recycling regulations and is not considered hazardous waste. Soiled packaging or packaging exposed to the interior of a lithium-ion cell or battery pack should be considered hazardous waste and disposed of according to local hazardous waste rules and regulations.





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## 14. Transportation Information

The transportation of lithium ion cells and batteries is regulated by the International Civil Aviation Organization, International Air Transport Association, International Maritime Dangerous Goods Code and the US Department of Transportation. The batteries must meet the following criteria for shipment: 1. Air shipments must meet the requirements listed in Special Provision A45 of the International Air Transport Association Dangerous Goods Regulations. 2. Meet the requirements for the US Department of Transportation listed in 49 CFR 173.185. 3. The transport of primary lithium batteries is prohibited aboard passenger aircraft. Refer to the Federal Register December 15, 2004 (Hazardous Materials; Prohibited on the Transportation of Primary Lithium Batteries and Cells Aboard Passenger Aircraft; Final Rule) Lithium batteries shipped as "Lithium batteries", "Lithium batteries packed with equipment", or "Lithium batteries contained in equipment" may not be classified as "Dangerous Goods" when shipped in accordance with "special provision A45 of IATA-DGR" or "special provision 188 of IMO-IMDG Code"

Lithium-ion cells and batteries are regulated for land, sea and air transportation. It is recommended that Lithium-ion cells and batteries should not be fitted to equipment during transportation. Note: Cells and Batteries must always be protected against short-circuiting during transport. Special precautions should be undertaken when damaged or defective cells and batteries are transported. You must contact the manufacturer before transporting damaged or defective cells and batteries. It is prohibited to carry defective or damaged cells and batteries by air.

Intec cells and batteries comply with all applicable shipping regulations as prescribed by industry and legal standards which include compliance with the UN Recommendations on the Transport of Dangerous Goods, IATA Dangerous Goods Regulations, U.S. DOT regulations for the safe transport of lithium-ion batteries, the International Maritime Dangerous Goods Code and the Canadian Transport of Dangerous Goods regulations.

<b>UN Number:</b>	<b>3480 or 3481</b>
<b>UN Proper Shipping Name:</b>	3480 – Lithium Ion Batteries 3481 – Lithium Ion Batteries Contained in Equipment 3481 – Lithium Ion Batteries Packed with Equipment
<b>Transport Hazard Class(es):</b>	Class 9 Subsidiary Risk - Label(s) 9 Hazard No. (ADR) - Tunnel Restriction code E

**Environmental hazards Marine Pollutant:** No

**Emergency Response Guide Number:** 147

**DOT** NOT REGULATED

**TDG** Not regulated

**MEX** Not regulated

**ICAO** Not regulated

**IATA** Not regulated

**IMDG/IMO** Not regulated



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## **15. Regulatory Information**

### **15.1 International Inventories**

**TSCA:** Complies  
**DSL:** Not determined

### **15.2 US Federal Regulations**

**OSHA:** These products do not meet criteria as per Part 1910.1200, manufactured article.

**15.3 SARA 311/312 Hazard Categories:**

Acute Health Hazard	No
Chronic Health Hazard	No
Fire Hazard	No
Sudden release of pressure hazard	No
Reactive Hazard	No

**CWA (Clean Water Act):** These products contain one or more substances which are regulated pollutants pursuant to the Clean Water Act (40 CFR 122.21 and 40 CFR 122.42)

### **Clean Air Act, Section 112 Hazardous Air Pollutants (HAPs) (see 40 CFR 61)**

These products contain one or more substances which are listed hazardous air pollutants (HAPS) under Section 112 of the Clean Air Act:

**CERCLA RQ:** None

### **15.4 US State Regulations**

#### **California Proposition 65**

These products do not contain any Proposition 65 chemicals.

#### **Canadian Federal Regulations**

These products have been classified in accordance with the hazard criteria of the Controlled Products Regulations and the SDS contains all the information required by the Controlled Products Regulations.

**WHMIS Classification:** Not Controlled, manufactured article.

**New Substance Notification Regulations:** Lithium hexafluorophosphate is listed on the Non-Domestic Substance List (NDSL). All other ingredients in the product are listed, as required, on Canada's Domestic Substances List (DSL).

**National Pollutant Release Inventory (NPRI) Substances:** These products do not contain any NPRI chemicals.

**WHMIS Hazard Class:** Non-controlled

#### **EC Classification for the Substance/Preparation:**

These products are not classified as hazardous according to Regulation (EC) No. 1272/2008.  
Keep out of the reach of children.

#### **EU Regulations:**

Regulation (EC) No. 1005/2009 on substances that deplete the ozone layer, Annex I: Not listed.  
Regulation (EC) No. 1005/2009 on substances that deplete the ozone layer, Annex II: Not listed.  
Regulation (EC) No. 850/2004 on persistent organic pollutants, Annex I as amended: Not listed.  
Regulation (EC) No. 689/2008 concerning the export and import of dangerous chemicals, Annex I, part 1 as amended: Not listed.





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Regulation (EC) No. 689/2008 concerning the export and import of dangerous chemicals, Annex I, part 2 as amended: Not listed.

Regulation (EC) No. 689/2008 concerning the export and import of dangerous chemicals, Annex I, part 3 as amended: Not listed.

Regulation (EC) No. 689/2008 concerning the export and import of dangerous chemicals, Annex V as amended: Not listed.

Regulation (EC) No. 166/2006, REACH Article 59(10) Candidate List as currently published by ECHA: Not listed.

**EU Authorizations:**

Regulation (EC) No. 1907/2006, REACH Annex XIV Substances subject to authorization, as amended: Not listed.

**EU Restrictions on use:**

Regulation (EC) No. 1907/2006, REACH Annex XVII Substances subject to restriction on marketing and use as amended:

Aluminium (CAS 7429-90-5)

Directive 2004/37/EC: on the safety and health of pregnant workers and workers who have recently given birth or are breastfeeding: Not listed.

**Other EU Regulations**

Directive 96/82/EC (Seveso II) on the control of major accident hazards involving dangerous substances: Not listed.

Directive 94/33/EC on the protection of young people at work: Not listed.

This Safety Data Sheet complies with the requirements of Regulation (EC) No. 1907/2006.

**Japanese Regulations**

Japanese Industrial Standards (JIS) JIS Z 7253:2012

Waste disposal and public cleaning law

Law for Promotion of Effective Utilization of Resources

**Australia and New Zealand**

SUSMP Not applicable

AICS All ingredients are on the AICS list.

HSNO Approval number Not applicable

HSNO Group Title Not applicable

NOHSC:10008 Risk Phrases R34 - Causes Burns.

NOHSC:1008 Safety Phrases

S1 – Keep locked up.

S2 – Keep out of reach of children

S23 – Do not breathe vapor.

S24/25 – Avoid contact with skin and eyes.

S26 – In case of contact with eyes, rinse immediately with plenty of water and seek medical advice.

S27/28 – After contact with skin, take off immediately all contaminated clothing and wash immediately with plenty of water.

S36/37/39 – Wear suitable protective clothing, gloves and eye/face protection.

S56 – Dispose of this material and its container at hazardous waste or special waste collection point.

S62 – If swallowed, DO NOT induce vomiting: seek medical advice immediately and show this container or label.

S64 – If swallowed, rinse mouth with water (Only if the person is conscious).





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**16. Other Information**

NFPA Health Hazards 1 Flammability 0 Instability 0 Physical and Chemical Hazards –  
HMIS Health Hazards 0 Flammability 0 Physical Hazard 0 Personal Protection X

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**Disclaimer**

The information provided in this Safety Data Sheet is correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as a guidance for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other materials or in any process, unless specified in the text

**End of Safety Data Sheet**

**Appendix A - Template for Accompanying Lithium Battery Document**

**Document Template**

Reference Number (optional): \_\_\_\_\_

**WARNING: LITHIUM BATTERIES THAT HAVE BEEN RECALLED BY THE MANUFACTURER FOR SAFETY REASONS MUST NOT BE SHIPPED BY AIR.**

**Terminology:**

- Cell – *electrochemical unit, consisting of an anode and a cathode, capable of generating electrical current*
- Battery – *assembly of cells*
- Lithium ion cells/batteries – *rechargeable – includes lithium polymer cells/batteries*
- Lithium metal cells/batteries – *generally non-rechargeable*

This package contains lithium cells or batteries in the following configuration (check applicable):

Lithium Ion - <i>Maximum of</i>	Lithium Metal - <i>Maximum of</i>
<ul style="list-style-type: none"> <li>• 20 Watt-hours per cell; and</li> <li>• 100 Watt-hours per battery</li> </ul>	<ul style="list-style-type: none"> <li>• 1 gram of lithium metal per cell; and</li> <li>• 2 grams of lithium per battery</li> </ul>
<input type="checkbox"/> Cells or batteries <u>only</u> (ICAO/IATA Packing Instruction 965, Section II) – <i>Cells or batteries in a package, without electronic equipment</i> <b>Package Limit:</b> ≤2.7 Wh = 2.5 kg; or >2.7 Wh but ≤ 20 Wh = 8 cells; or >2.7 Wh but ≤ 100 Wh = 2 batteries	<input type="checkbox"/> Cells or batteries <u>only</u> (ICAO/IATA Packing Instruction 968, Section II) – <i>Cells or batteries in a package, without electronic equipment</i> <b>Package Limit:</b> ≤0.3 g = 2.5 kg; or >0.3 g but ≤ 1 g = 8 cells; or >0.3 g but ≤ 2 g = 2 batteries
<input type="checkbox"/> Cells or batteries <u>only</u> (ICAO/IATA Packing Instruction 965, Section IB) – <i>Cells or batteries in a package, without electronic equipment</i>	<input type="checkbox"/> Cells or batteries <u>only</u> (ICAO/IATA Packing Instruction 968, Section IB) – <i>Cells or batteries in a package, without electronic equipment</i>
<input checked="" type="checkbox"/> Packed <u>with equipment</u> (ICAO/IATA Packing Instruction 966, Section II) – <i>Cells or batteries contained in a package with associated electronic equipment</i>  <span style="font-size: 1.2em; color: blue;">UN 3481</span>	<input type="checkbox"/> Packed <u>with equipment</u> (ICAO/IATA Packing Instruction 969, Section II) – <i>Cells or batteries contained in a package with associated battery-powered equipment – with the batteries not installed in the equipment</i>
<input type="checkbox"/> Contained <u>in equipment</u> (ICAO/IATA Packing Instruction 967, Section II) – <i>Cells or batteries installed in equipment</i>	<input type="checkbox"/> Contained <u>in equipment</u> (ICAO/IATA Packing Instruction 970, Section II) – <i>Cells or batteries installed in equipment</i>

- This package must be handled with care. A flammability hazard exists if the package is damaged.
- If this package is damaged in transportation, it must not be loaded until the condition of the contents can be verified. The batteries contained in this package must be inspected for damage and may only be repacked if they are intact and protected against short circuits.
- For more information about the batteries contained in this package, call the following telephone number:

\_\_\_\_\_ List telephone number here, including area code and any applicable country code

Name/Address of shipper:

Mag Instrument, Inc.  
2001 S. Hellman Ave.  
Ontario, CA 91761

Signed: Marilyn Zimmerman

*Marilyn Zimmerman*





Date: \_\_\_\_\_

Bill McMurray

*Bill McMurray*



**UN 3481 Lithium ion batteries (including lithium ion polymer batteries)**

	PACKED WITH EQUIPMENT		CONTAINED IN EQUIPMENT	
Packing Instruction	PI 966 Section I	PI 966 Section II	PI 967 Section I	PI 967 Section II
Capacity	Cell >20Wh Battery >100Wh	Cell ≤20Wh Battery ≤100Wh	Cell >20Wh Battery >100Wh	Cell ≤20Wh Battery ≤100Wh
Max Quantity per Package for Pax Aircraft	5 kg net	5 kg net number required for equipment plus 2 spare	5 kg net	5 kg net
Max Quantity per Package for Cargo Aircraft	35 kg net	5 kg net	35 kg net	5 kg net
Outer Packaging	UN Specification Packaging PG II Performance Standards	Strong outer packaging, 1.2m drop test	Strong outer packaging	Strong outer packaging
Inner Packaging	Required, protect against short circuit	Required, protect against short circuit	Prevent accidental activation	Prevent accidental activation
Markings	UN3481 Lithium ion batteries packed with equipment	None	UN3481 Lithium ion batteries contained in equipment	None
Labeling				
Allowed in Small Package (US Only)? [Yes or No]	Yes	Yes	Yes	Yes
Allowed in Small Package (Non-U.S.)? [Yes or No]	Yes (All IDG Countries except to/from/within Europe)	Yes (Any Destination)	Yes (All IDG Countries except to/from/within Europe)	Yes (Any Destination)
Allowed in Air Cargo? [Yes or No]	Yes (PAX Quantity Only)	Yes	Yes (PAX Quantity Only)	Yes
Allowed in Air Freight? [Yes or No]	Yes	Yes	Yes	Yes
DG Documents for Small Package (U.S. & Non-U.S.)	Shipper's Declaration	None	Shipper's Declaration	None
DG Documents for Air Cargo & Air Freight (U.S. & Non-U.S.)	Shipper's Declaration	Air Waybill (4)	Shipper's Declaration	Air Waybill (4)
Safety Document Required? [Yes or No]	NO	Yes	NO	Yes (Only if lithium battery handling label required)
Acceptance Audit Required? [Yes or No]	Yes	NO	Yes	NO
Information Displays on the NOTOC? [Yes or No]	Yes	NO	Yes	NO

Applicable Footnotes			
(1)	(2)	(3)	(4)
Footnote not used on this page.	Footnote not used on this page.	Footnote not used on this page.	<u>AWB (Air Waybill) required information for Section II shipments:</u> - "Lithium ion batteries in compliance with Section II of PI 966" or "Lithium ion batteries in compliance with Section II of PI 967" (as applicable)





## PACKING INSTRUCTION 966

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This instruction applies to lithium ion or lithium polymer cells and batteries packed with equipment (UN 3481) on passenger and Cargo Aircraft Only.

### Part 1

Lithium ion or lithium polymer cells and batteries offered for transport are not subject to other additional requirements of these Regulations if they meet the requirements in Part 1.

Lithium batteries identified by the manufacturer as being defective for safety reasons, that have been damaged or have the potential for producing a dangerous evolution of heat, fire or short circuit are forbidden for transport (e.g. those being returned to the manufacturer for safety reasons).

Lithium ion alloy cells and batteries may be offered for transport if they meet the following:

1. for cells, the Watt-hour rating is not more than 20 Wh;
2. for batteries, Watt-hour rating is not more than 100 Wh. The Watt-hour rating must be marked on the outside of the battery case except those manufactured before 1 January 2009 which may be transported without this marking until 31 December 2010;
3. each cell or battery is of the type proven to meet the requirements of each test in the UN *Manual of Tests and Criteria*, Part III, subsection 38.3.

### General requirements

Cells and batteries must be packed in strong outer packagings that conform to 5.0.2.4, 5.0.2.6.1 and 5.2.12.1.

The current exception for the larger lithium ion batteries with a lithium equivalent of more than 8 grams up to 25 grams will be revised as follows:

- the 8 – 25 gram equivalent lithium content limitation will be eliminated and replaced with 100 – 160 Watt hours (this equates to 8 – 12.8 grams lithium equivalent);
- the 100 – 160 Wh exception will apply to batteries installed in equipment which may be in either checked or carry-on baggage;
- passengers may also carry two of these larger lithium ion batteries as spares, but the spare batteries must be in carry-on baggage;
- in order to carry these larger batteries, either installed in equipment or as spares, passengers must first secure approval from the airline or airlines on which they are travelling.



### Additional requirements

Cells and batteries must be packed in inner packagings that completely enclose the cell or battery.

Cells and batteries must be protected so as to prevent short circuits. This includes protection against contact with conductive materials within the same packaging that could lead to a short circuit.

The maximum number of batteries in each package must be the minimum number required to power the equipment plus two spares.

Each package of batteries must be capable of withstanding a 1.2 m drop test in any orientation without:

- damage to cells or batteries contained therein;
- shifting of the contents so as to allow battery to battery (or cell to cell) contact;
- release of contents.

Each consignment must be accompanied with a document such as an air waybill with an indication that:

- the package contains lithium ion cells or batteries;
- the package must be handled with care and that a flammability hazard exists if the package is damaged;
- special procedures should be followed in the event the package is damaged, to include inspection and repacking if necessary; and
- a telephone number for additional information.

Each package must be labelled with a lithium battery handling label (Figure 7.4.I);

Any person preparing or offering cells or batteries for transport must receive adequate instruction on these requirements commensurate with their responsibilities.

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### OUTER PACKAGINGS

Type	Drums	Jerricans	Boxes
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#### Part 2

Part 2 requirements apply to each cell or battery type that has been determined to meet the criteria for assignment to Class 9.

Each cell or battery must:

1. Be of the type proven to meet the requirements of each test in the UN *Manual of Tests and Criteria*, Part III, subsection 38.3.
2. Incorporate a safety venting device or be designed to preclude a violent rupture under conditions normally incident to transport and be equipped with an effective means of preventing external short circuits.

	Quantity per package Passenger aircraft	Quantity per package Cargo Aircraft Only
Quantity of lithium ion cells and batteries per overpack, excluding weight of equipment	5 kg	35 kg

#### General requirements

The General Packing Requirements of 5.0.2 must be met.

#### Additional requirements

- all lithium ion cells and batteries prepared for transport as Class 9 must be protected against short circuits;
- the completed package for the cells or batteries must meet Packing Group II packaging standards;
- each completed package containing lithium cells or batteries must be marked and labelled in accordance with the applicable requirements of Section 7;
- the equipment and the packages of lithium cells or batteries must be placed in an overpack. The overpack must bear applicable marks and labels as set out in 7.1.4 and 7.2.7;
- for the purpose of this packing instruction, "equipment" means apparatus requiring the lithium batteries with which it is packed for its operation.

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### OUTER PACKAGINGS

Type	Drums	Jerricans	Boxes
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