

The regulations that govern the transport of primary lithium (metal) and rechargeable lithium ion (including polymer) cells and batteries include the International Civil Aviation Organization (ICAO) Technical Instructions and corresponding International Air Transportation Association (IATA) Dangerous Goods Regulations, and International Maritime Dangerous Goods (IMDG) Code. In addition, most lithium cells and batteries of all types and equipment containing or packed with lithium batteries or cells of all types are regulated as Class 9 (Miscellaneous) hazardous materials in the US in accordance with Part 49 of the Code of Federal Regulations (49-CFR 171-180) of the US Hazardous Materials Regulations (HMR). Sections 173.185 and the Special Provisions contained in 172.102 provide information on exceptions and packaging based on details of weight, tests and classifications. The Office of Hazardous Materials Safety, which is within the Department Of Transportation (DOT) Pipeline and Hazardous Materials Safety Administration (HMSA) is responsible for writing the regulations that govern the transportation of hazardous materials (also known as dangerous goods) by air, rail, highway and water and drafting the regulations that govern such materials. These regulations are based on UN Recommendation on the Transport Dangerous Goods Model Regulations and UN Manual of Tests and Criteria.

We summarized these new rules for the convenience of our customers and distributors. This summary applies to all non-rechargeable (Primary) lithium batteries, rechargeable (Secondary) lithium ion batteries including lithium polymer, shipped from, into or within the United States. The information set forth herein is made in good faith and is believed to be accurate as of the date of preparation. BIPOWER makes no warranty expressed or implied, and disclaims all liabilities from reliance on it.

General Regulations and Definitions

1. All lithium metal or ion (including polymer) cells and batteries (no matter their sizes) are Forbidden For Transport Aboard Passenger Aircraft.
2. Rules of thumb for transportation of BIPOWER lithium batteries
3. Effective October 1, 2009, the lithium cell or battery must be of a type proven to meet the requirements of each test in the UN Manual of Tests and Criteria
4. Lithium Cells and Battery Category Definitions

	Small (Maximum of)	Medium (Maximum of)	Large (more than)
Cells:			
Primary	1 gram lithium metal*	5 grams lithium metal	5 gram lithium metal
Secondary	20 Watt-Hours (Wh)**	60 Watt-Hours (Wh)	60 Watt-Hours (Wh)
Batteries:			
Primary	2 gram lithium metal	25 grams lithium metal	25 gram lithium metal
Secondary	100 Watt-Hours (Wh)	300 Watt-Hours (Wh)	300 Watt-Hours (Wh)

* Lithium metal content = Capacity (Ah) / 3.86
 ** Watt-Hours (Wh) = Capacity (Ah) * Voltage (V)

Note: The formula for lithium metal content calculation may vary with different manufacturers and production process.

Transportation of Lithium Cells and Batteries From, Into or Within the United States

1. All lithium metal and lithium ion (including polymer) cells and/or batteries offered for air transport (except for cells or batteries packed with or contained in equipment) are regulated as Class 9 Dangerous Goods. A specific Class 9 Label and Specification Packaging are required. All lithium metal cells and batteries are forbidden for transport aboard Passenger Aircraft.
2. All small lithium metal or ion cells or batteries are EXCEPTED from Regulations, when transported by motor vehicle, rail car or vessel (land or ocean), or packed with or contained in equipment. No Class 9 Label and No Specification Packaging are required.
3. All medium lithium metal or ion cells or batteries are EXCEPTED from Regulations, when transported by motor vehicle or rail car (land), or packed with or contained in equipment. No Class 9 Label and No Specification Packaging are required.
4. All lithium metal or ion cells or batteries for transport must meet the following requirements:
 - 1) Cells or batteries are separated so as to prevent short circuits and are packed in a strong outer packaging or are contained in equipment.
 - 2) Except when contained in equipment, each package containing lithium metal cells or batteries must be:
 - (1) Marked to indicate that it contains lithium batteries, and special procedures should be followed in the event that the package is damaged;
 - (2) Capable of withstanding a 1.2 meter drop test in any orientation without damage to cells or batteries contained in the package, without shifting of the contents that would allow short circuiting and without release of package contents;
 - (3) The outside of each package must be marked a DOT lithium battery label:

For small lithium metal cells or batteries:

**PRIMARY LITHIUM BATTERIES
FORBIDDEN FOR TRANSPORT
ABOARD PASSENGER AIRCRAFT**

For medium or large lithium metal cells or batteries

**PRIMARY LITHIUM BATTERIES
FORBIDDEN FOR TRANSPORT
ABOARD AIRCRAFT AND VESSEL**

For lithium ion including polymer cell or batteries

**LITHIUM ION BATTERIES
FORBIDDEN FOR TRANSPORT
ABOARD PASSENGER AIRCRAFT**

- 3) Gross weight of the package may not exceed 30 kg (66 pounds). This requirement does not apply to lithium cells or batteries packed with or contained in equipment;
5. Medium lithium metal cells and/or batteries, when transported by air, are regulated as Class 9 Miscellaneous. Class 9 marking or label and specifications packaging are required.
6. Large lithium metal cells and/or batteries, when transported by any means, are regulated as Class 9 Miscellaneous. Class 9 marking or label and specifications packaging are required.
7. Lithium battery UN numbers and classifications:

UN numbers for lithium metal (primary) or ion (rechargeable) batteries:

Lithium metal cells/batteries:	UN 3090
Lithium metal cells/batteries packed with or contained in equipment:	UN 3091
Lithium ion cells/batteries:	UN 3480
Lithium ion cells/batteries packed with or contained in equipment:	UN 3481

Attachment 1 - Transportation of BIPOWER Primary Lithium Batteries

1. Small Primary Lithium Cells or Batteries:

1) Label and packaging requirement for air and vessel shipment:

- A DOT lithium battery label;
- A lithium battery handling label;
- A Class 9 label;
- A Cargo Air Craft Only label;
- Specification Packaging and UN boxes;

2) Label requirement for land and vessel shipment:

- A DOT lithium battery label;
- A lithium battery handling label;

3) Table 1 - A list of BIPOWER small lithium battery models:

BiPOWER Battery Part No.	Lithium Content	UN T1-T8 Test Status	Transportation Regulations
BL-4PN, BL-4PN-S2, BL-4PN-S10 BL-5PN, BL-5PN-S1 BL-7PN, BL-7PN-S2, BL-7PN-S4, BL-7PN-S6, BL-7PN-ST, BL-7PN-ST2 BL-16PN, BL-16PN-S2, BL-16PN-S4, BL-16PN-S7, BL-16PN-S8	< 1 g	Complete/pass	Excepted for land or vessel transport Class 9 for air transport
ER32065, ER32100, ER2450, ER2450-ST, ER22G68	< 1 g	Complete/pass	"
ER14250, ER14335, ER14505, ER1735, ER17505, ER18505 ER14250M, ER14335M, ER14505M, ER17335M, ER17505M, ER18505M ER14250S, ER14505S	< 1 g	Complete/pass	"
CR3032, CR2477, CR2450, CR2430, CR2330, CR2032, CR2025, CR1225, And All Other CR Series Coin Cells	< 1 g	Complete/pass	"
1/3N, CR2, 123A, 2CR5, CR-P2, CR-V3, CR14250, CR14335, CR14505, CR17250, CR17505, CR18505	< 1 g	Complete/pass	"
BL9V-P, BL9V-U	< 2 g	Complete/pass	"

2. Medium Primary Lithium Cells or Batteries

1) Label and packaging requirement for air and vessel shipment:

- A DOT lithium battery label;
- A lithium battery handling label;
- A Class 9 label;
- A Cargo Air Craft Only label;
- Specification Packaging and UN boxes;

2) Label requirement for motor vehicle and rail car shipment:

- A DOT lithium battery label;
- A lithium battery handling label;

3) Table 2 - A list of BIPOWER medium lithium battery models:

BIPOWER Battery Part No.	Lithium Content	UN T1-T8 Test Status	Transportation Regulations
ER26500, ER34615, ER341245 ER26500M, ER34615M ER25500S, ER251020S, ER34615S	1 - 5 g	Complete/pass	Excepted for motor vehicle or rail car Class 9 for air or vessel transport

3. Large Primary Lithium Cells or Batteries

1) Class 9 Dangerous Goods regulations apply for transportation by any means.

2) Label and packaging requirement for air and vessel shipment:

- A DOT lithium battery label;
- A lithium battery handling label;
- A Class 9 label;
- A Cargo Air Craft Only label;
- Specification Packaging and UN boxes;

3) Table 3 - A list of BIPOWER large lithium battery model(s):

BIPOWER Battery Part No.	Lithium Content	UN T1-T8 Test Status	Transportation Regulations
ER341245	> 5 g	Complete/pass	Class 9

Attachment 2 - Transportation of BIPOWER Secondary (Rechargeable) Lithium Ion Batteries

1. Small Lithium Ion or Polymer Cells or Batteries:

1) Label and packaging requirement for air shipment:

- A DOT lithium battery label;
- A lithium battery handling label;
- A Class 9 label;
- A Cargo Air Craft Only label;
- Specification Packaging and UN boxes;

2) Label requirement for land and vessel shipment:

- A DOT lithium battery label;
- A lithium battery handling label;

3) Table 4 - A list of BIPOWER small lithium ion battery models:

BiPOWER Battery Part No.	Watt-Hours (Wh)	UN T1-T8 Test Status	Transportation Regulations
LP103450, LP063450, LP053450, LP053443, LP053048, LP053040, LP043450, LP043048, LP043041 HR18650, LR18650, LR18500, LR17650, LR17500 BLP103450PM, BLP103450P, BLP063450PM, BLP063450P, BLP053450P, BLP043048P	< 20 Wh	Complete/pass	Excepted for land or vessel transport Class 9 for air transport

Attachment 3 – Content of UN Manual of Tests and Criteria

- Test T.1 Altitude simulation;
- Test T.2 Thermal test;
- Test T.3 Vibration;
- Test T.4 Shock;
- Test T.5 External short circuit;
- Test T.6 Impact;
- Test T.7 Overcharge;
- Test T.8 Forced discharge;

Attachment 4 – Lithium Battery Marking or Labels

1. Lithium battery handling label



2. Miscellaneous Class 9 label



3. Cargo Air Craft Only label

