

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 Primary Lithium Cells and Batteries** (no matter they are small, medium or large) are **Forbidden For Transport Aboard Passenger Aircraft.**
2. Rules of thumb for transportation of BIPOWER lithium batteries

[\(Attachment 1 – Transportation of BIPOWER Primary Lithium Batteries\)](#)
[\(Attachment 2 – Transportation of BIPOWER Secondary Lithium Batteries\)](#)
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 ([Attachment 3 - UN Manual of Tests and Criteria](#)).
4. Lithium Cells and Battery Category Definitions

| | Small (no more than) | Medium (between) | Large (no more than) |
|-----------------|--------------------------------|----------------------------|--------------------------------|
| Cells: | | | |
| Primary | 1 g Li | 1 g and 5 g Li | 5 g Li |
| Secondary | 1.5 g ELC * | 1.5 g and 5 g ELC | 5 g ELC |
| Batteries: | | | |
| Primary | 2 g Li | 2 g and 25 g Li | 25 g Li |
| Secondary | 8 g ELC | 8 g and 25 g ELC | 25 g ELC |

* ELC (Equivalent Lithium Content) = Capacity (Ah) * 0.3

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

1. **Small Lithium Cells and Batteries** (including cells or batteries packed with or contained in equipment) are **EXCEPTED** from Regulations, **No Class 9 Marking or Label** and **No Specification Packaging** are required, and can be transported **via Any Means but Passenger Aircraft** (for Primary lithium batteries) if they 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 more than 24 lithium cells or 12 lithium 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) Gross weight of the package may not exceed 30 kg (66 pounds). This requirement does not apply to lithium cells or batteries packed with equipment;
 - 3) The outside of each package that contains primary (non rechargeable) lithium batteries or cells must be marked ([Attachment 4 – DOT Label for Small Primary Lithium Batteries](#)):

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

2. **Medium Lithium Cells and/or Batteries** are **EXCEPTED** from Regulations, **when transported by motor vehicle or rail car, or packed with or contained in equipment. No Class 9 Marking or Label** and **No Specification Packaging** are required, if they 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 more than 24 lithium cells or 12 lithium 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 ([Attachment 5 – DOT Label for Medium Primary Lithium Batteries](#)):

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

- 4) Gross weight of the package may not exceed 30 kg (66 pounds). This requirement does not apply to lithium cells or batteries packed with equipment;

3. **Medium Lithium Cells and/or Batteries**, when transported by air, are regulated as Class 9 Miscellaneous. Class 9 marking or label and specifications packaging are required.
4. **Large Lithium 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.
5. Lithium battery UN numbers and classifications:

Lithium metal (primary) or ion (rechargeable) batteries are regulated as Class 9 Miscellaneous:

| | |
|--|---------|
| 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
(For Lithium Batteries Shipped From, Into or Within the United States of America)**

1. Small Primary Lithium Batteries:

Requirements: A DOT label is required ([Attachment 4](#))
Item 1 Small Lithium Cells and Batteries 1) and 2) for Packaging conditions.

The following parts or models are **Excepted from regulations.**

**No Class 9 marking or label and No Specification Packaging are required.
They may be transported via Any Means but Passenger Aircraft**

| 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 |
| ER32065, ER32100, ER2450, ER2450-ST, ER22G68 | < 1 g | Complete/pass | Excepted |
| ER14250, ER14335, ER14505, ER1735, ER17505, ER18505 ER14250M, ER14335M, ER14505M, ER17335M, ER17505M, ER18505M ER14250S, ER14505S | < 1 g | Complete/pass | Excepted |
| CR3032, CR2477, CR2450, CR2430, CR2330, CR2032, CR2025, CR1225, And All Other CR Series Coin Cells | < 1 g | Complete/pass | Excepted |
| 1/3N, CR2, 123A, 2CR5, CR-P2, CR-V3, CR14250, CR14335, CR14505, CR17250, CR17505, CR18505 | < 1 g | Complete/pass | Excepted |
| BL9V-P, BL9V-U | < 2 g | Complete/pass | Excepted |

2. Medium Primary Lithium Batteries (Excepted)

Requirements: A DOT label is required ([Attachment 5](#))
 Item 2 Medium Lithium Cells and Batteries 1), 2) and 3) for Packaging conditions.

The following parts or models are **Excepted** from regulations, when transported by motor vehicle or rail car, or packed with or contained in equipment.

No Class 9 marking or label and No Specification Packaging are required.

| 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 Transportation |

3. Medium Primary Lithium Batteries (Class 9)

Class 9 regulations apply for transportation by air.

| 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 | Class 9 for Air or Vessel Transportation |

4. Large Primary Lithium Batteries

Class 9 regulations apply for transportation by any means.

| 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 Batteries

1. Lithium ion (Secondary) Batteries

Requirements: The outside of each package that contains Secondary (rechargeable) lithium batteries or cells must be marked:

**LITHIUM-ION
RECHARGEABLE
BATTERIES INSIDE**

Item 1 Small Lithium Cells and Batteries 1) and 2) for Packaging conditions.

The following parts or models are Excepted from regulations.

No Class 9 marking or label and No Specification Packaging are required.

| BiPOWER Battery Part No. | Equivalent Lithium Content | 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 | < 1 g ELC | Complete/pass | Excepted |

The letters in the marking must be on a background of contrasting color:

- (i) At least 12 mm (0.5 inch) in height on packages having a gross weight of more than 30 kg (66 pounds); or
- (ii) At least 6 mm (0.25 inch) on packages having a gross weight of 30 kg (66 pounds) or less, except that smaller font may be used as necessary to fit package dimensions

Attachment 3 – UN Manual of Tests and Criteria

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

Attachment 4 – DOT Label for Transportation of Small Primary Lithium Batteries

The outside of each package that contains primary (non rechargeable) lithium batteries or cells must be marked:

PRIMARY LITHIUM BATTERIES FORBIDDEN FOR TRANSPORT ABOARD PASSENGER AIRCRAFT

on a background of contrasting color. The letters in the marking must be:

- (iii) At least 12 mm (0.5 inch) in height on packages having a gross weight of more than 30 kg (66 pounds); or
- (iv) At least 6 mm (0.25 inch) on packages having a gross weight of 30 kg (66 pounds) or less, except that smaller font may be used as necessary to fit package dimensions;

Attachment 5 – DOT Label for Transportation of Medium Primary Lithium Batteries

The outside of each package that contains primary (non rechargeable) lithium batteries or cells must be marked:

LITHIUM BATTERIES FORBIDDEN FOR TRANSPORT ABOARD AIRCRAFT AND VESSEL

on a background of contrasting color, in letters:

- (i) At least 12 mm (0.5 inch) in height on packages having a gross weight of more than 30 kg (66 pounds); or
- (ii) At least 6 mm (0.25 inch) on packages having a gross weight of 30 kg (66 pounds) or less, except that smaller font may be used as necessary to fit package dimensions.