

# Lithium Batteries

Guidance Document





# Disclaimer

- This guidance is based on the IATA Dangerous Goods Regulations Edition 63 and provides guidance for fully trained and qualified shippers for shipping Lithium-Ion batteries and Lithium Metal batteries. All shippers should ensure that all the applicable packing instructions and special provisions are complied with for each shipment prior to shipping with GTA GSM.
- GTA GSM accepts no liability for loss or damage resulting in changes, errors, omissions, or misinterpretations of this document.
- All Damaged, Defective or Recalled batteries are prohibited for air transport with GTA GSM
- The information discussed in this document has been retrieved from the IATA Dangerous Goods Manual, Edition 63

I have read and agree to the above

I agree

I do not agree



# Contents – Select One

Definitions

Shipping Guidance

Preapproval Requests

Contact Us

# Definitions

- **Battery**
  - Two or more cells or batteries which are electrically connected together
- **Cell**
  - A single encased electrochemical unit which exhibits a voltage differential across two terminals.
- **Lithium-ion Battery**
  - A secondary battery, which is rechargeable, where the lithium content is only present in ionic form in the electrolyte. These can also be referred to as lithium polymer batteries.
- **Lithium Metal Battery**
  - A primary battery which is not rechargeable, that uses lithium metal or lithium compounds as an anode. These can also be referred to as lithium alloy batteries.
- **Watt-hour rating**
  - This is calculated by multiplying the rated capacity in ampere-hours by the nominal voltage.
- **Power Bank/Portable Charger**
  - Portable cells or batteries used to provide a charge to separate batteries. These are to be classified as batteries and must be assigned to UN 3480, lithium-ion batteries, or UN 3090, lithium metal batteries, as applicable



# Battery type – Select One

Lithium batteries or  
cells contained in  
equipment

No equipment –  
Standalone batteries  
or cells  
(Including portable  
chargers/power  
banks)

Lithium batteries or  
cells packed with  
equipment

# Battery Material – Select One

Lithium batteries or cells contained in equipment

Lithium-ion

Lithium Metal



# Battery Rating – Select One

Lithium batteries or cells contained in equipment > Lithium Ion

Cells > 20wh

Batteries > 100Wh

Cells  $\leq$  20wh

Batteries  $\leq$  100Wh



# Shipping Guidance

Lithium batteries or cells contained in equipment > Lithium Ion > Section I

## Shipment

- UN3481
- Packing Instruction 967
- Section I – Restricted – RLI
- Maximum net quantity (Package)
  - Passenger Aircraft – 5 kg
  - Cargo Aircraft Only (C.A.O) – 35 kg

## Packaging

- Each battery or cell must be protected against a short circuit and placed in an inner packaging that completely encloses the battery or cell, then placed in a strong rigid outer packaging

## Documentation

- Shippers Dangerous Goods Declaration
- Air Way Bill statement
  - Dangerous Goods as per associated DGD
  - C.A.O or Cargo Aircraft Only (If applicable)

## Labels

When Applicable:





# Shipping Guidance

Lithium batteries or cells contained in equipment > Lithium Ion > Section II

## Shipment

- UN3481
- Packing Instruction 967
- Section II – Not Restricted - EII
- Maximum net quantity (Package)
  - Passenger Aircraft – 5 kg
  - Cargo Aircraft Only (C.A.O) – 5 kg

## Packaging

- The equipment must be packed in strong rigid outer packaging constructed of suitable material of adequate strength and design in relation to the packaging's capacity and its intended use unless the cell or battery is afforded equivalent protection by the equipment in which is contained.
- The equipment containing the cells or batteries must be secured against movement within the outer packaging and must be equipped with an effective means to prevent accidental activation

## Documentation

- Shippers Dangerous Goods Declaration
- Air Way Bill statement
  - Lithium Ion Batteries in Compliance with Section II of PI 967

## Labels

- Some shipments are exempt from labelling Please check packing instruction
- Shipper phone number must be included on the label



# Battery Rating – Select One

Lithium batteries or cells contained in equipment > Lithium Metal

Cells > 1 g  
Batteries > 2 g

Cells  $\leq$  1 g  
Batteries  $\leq$  2 g



# Shipping Guidance

Lithium batteries or cells contained in equipment > Lithium Metal > Section I

## Shipment

- UN3091
- Packing Instruction 970
- Section I – Restricted – RLM
- Maximum net quantity (Package)
  - Passenger Aircraft – 5 kg
  - Cargo Aircraft Only (C.A.O) – 35 kg
- Maximum net quantity (Equipment)
  - 500 g per battery
  - 12 g per cell

## Packaging

- Each battery or cell must be protected against a short circuit and placed in an inner packaging that completely encloses the battery or cell, then placed in a strong rigid outer packaging

## Documentation

- Shippers Dangerous Goods Declaration
- Air Way Bill statement
  - Dangerous Goods as per associated DGD
  - C.A.O or Cargo Aircraft Only (If applicable)

## Labels

When Applicable:



# Shipping Guidance

Lithium batteries or cells contained in equipment > Lithium Metal > Section II

## Shipment

- UN3091
- Packing Instruction 970
- Section II – Not Restricted - ELM
- Maximum net quantity (Package)
  - Passenger Aircraft – 5 kg
  - Cargo Aircraft Only (C.A.O) – 5 kg

## Packaging

- The equipment must be packed in strong rigid outer packaging constructed of suitable material of adequate strength and design in relation to the packaging's capacity and its intended use unless the cell or battery is afforded equivalent protection by the equipment in which is contained.
- The equipment containing the cells or batteries must be secured against movement within the outer packaging and must be equipped with an effective means to prevent accidental activation

## Documentation

- Shippers Dangerous Goods Declaration
- Air Way Bill statement
  - Lithium Metal Batteries in Compliance with Section II of PI 970

## Labels

- Some shipments are exempt from labelling Please check packing instruction
- Shipper phone number must be included on the label



# Battery Material – Select One

Lithium batteries or cells



Lithium-ion

Lithium Metal



# Battery Rating – Select One

Lithium batteries or cells > Lithium Ion

Cells > 20wh

Batteries > 100Wh

Cells  $\leq$  20wh

Batteries  $\leq$  100Wh



# Shipping Guidance

Lithium batteries or cells > Lithium Ion > Section IA

## Shipment

- UN3480
- Packing Instruction 965
- Section IA – Restricted – RBI
- Maximum net quantity (Package)
  - Passenger Aircraft – Forbidden
  - Cargo Aircraft Only (C.A.O) – 35 kg
- Batteries and Cells are limited to a 30% SoC, any batteries or cells shipped with an SoC > 30% are forbidden for transport on all aircraft.

## Packaging

- Cells and batteries must be placed in inner packaging's that completely enclose the cell or battery then placed in outer packaging. The completed package for the batteries or cells, must meet the packing group II performing standards
- UN packaging required
- May not be shipped under Section II provisions after 31 March 2022

## Documentation

- Shippers Dangerous Goods Declaration
- Air Way Bill statement
  - Dangerous Goods as per associated DGD
  - C.A.O or Cargo Aircraft Only

## Labels



# Shipping Guidance

Lithium batteries or cells > Lithium Ion > Section IB

## Shipment

- UN3480
- Packing Instruction 965
- Section IB – Restricted – RBI
- Maximum net quantity (Package)
  - Passenger Aircraft – Forbidden
  - Cargo Aircraft Only (C.A.O) – 10 kg
- Batteries and Cells are limited to a 30% SoC, any batteries or cells shipped with an SoC > 30% are forbidden for transport on all aircraft.

## Packaging

- Each battery or cell must be packed in inner packagings that completely enclose the cell or battery. To provide protection from damage or compression to the batteries or cells. The inner packagings must be placed in a strong rigid outer packaging of the type showing in the packing instruction.
- May not be shipped under Section II provisions after 31 March 2022

## Documentation

- Shippers Dangerous Goods Declaration
- Air Way Bill statement
  - Dangerous Goods as per associated DGD
  - C.A.O or Cargo Aircraft Only

## Labels

- Shipper phone number must be included on the UN3480 label





# Battery Rating – Select One

Lithium batteries or cells > Lithium Metal

Cells > 1 g  
Batteries > 2 g

Cells  $\leq$  1 g  
Batteries  $\leq$  2 g



# Shipping Guidance

Lithium batteries or cells > Lithium Metal > Section IA

## Shipment

- UN3090
- Packing Instruction 968
- Section IA – Restricted – RBM
- Maximum net quantity (Package)
  - Passenger Aircraft – Forbidden
  - Cargo Aircraft Only (C.A.O) – 35 kg

## Packaging

- Cells and batteries must be placed in inner packaging's that completely enclose the cell or battery then placed in outer packaging. The completed package for the batteries or cells, must meet the packing group II performing standards
- UN packaging required
- May not be shipped under Section II provisions after 31 March 2022

## Documentation

- Shippers Dangerous Goods Declaration
- Air Way Bill statement
  - Dangerous Goods as per associated DGD
  - C.A.O or Cargo Aircraft Only

## Labels



# Shipping Guidance

Lithium batteries or cells > Lithium Metal > Section IB

## Shipment

- UN3090
- Packing Instruction 968
- Section IA – Restricted – RBM
- Maximum net quantity (Package)
  - Passenger Aircraft – Forbidden
  - Cargo Aircraft Only (C.A.O) – 2.5 kg

## Packaging

- Each battery or cell must be packed in inner packagings that completely enclose the cell or battery. To provide protection from damage or compression to the batteries or cells. The inner packagings must be placed in a strong rigid outer packaging of the type showing in the packing instruction.
- May not be shipped under Section II provisions after 31 March 2022

## Documentation

- Shippers Dangerous Goods Declaration
- Air Way Bill statement
  - Dangerous Goods as per associated DGD
  - C.A.O or Cargo Aircraft Only

## Labels

- Shipper phone number must be included on the UN3090 label



# Battery Material – Select One

Lithium batteries or cells packed with equipment



Lithium-ion

Lithium Metal



# Battery Rating – Select One

Lithium batteries or cells packed with equipment > Lithium Ion

Cells > 20wh  
Batteries > 100Wh

Cells  $\leq$  20wh  
Batteries  $\leq$  100Wh



# Shipping Guidance

Lithium batteries or cells packed with equipment > Lithium Ion > Section I

## Shipment

- UN3481
- Packing Instruction 966
- Section I – Restricted – RLI
- Maximum net quantity (Package)
  - Passenger Aircraft – 5 kg
  - Cargo Aircraft Only (C.A.O) – 35 kg
- The number of cells or batteries in each package must not exceed the number required for the equipment's operation, plus two spare sets.
  - A “set” of cells or batteries is the number required to power each piece of equipment.

## Packaging

- Cells and batteries must be completely enclosed in inner packagings then placed in a packaging of the type shown in the packing instruction, that meets the packing group II performance standards, then placed with the equipment in a strong rigid outer packaging; or
- Be completely enclosed in inner packagings then placed with the equipment in a packaging of the type shown in the packing instruction that meets packing group II performance standards.

## Documentation

- Shippers Dangerous Goods Declaration
- Air Way Bill statement
  - Dangerous Goods as per associated DGD
  - C.A.O or Cargo Aircraft Only (If applicable)

## Labels

When Applicable:



# Shipping Guidance

Lithium batteries or cells packed with equipment > Lithium Ion > Section II

## Shipment

- UN3481
- Packing Instruction 966
- Section II – Not Restricted - EII
- Maximum net quantity (Package)
  - Passenger Aircraft – 5 kg
  - Cargo Aircraft Only (C.A.O) – 5 kg
- The number of cells or batteries in each package must not exceed the number required for the equipment's operation, plus two spare sets.
  - A “set” of cells or batteries is the number required to power each piece of equipment.

## Packaging

- Cells and or batteries must be completely enclosed in inner packagings then placed with the equipment in a strong rigid outer packaging
- The equipment containing the cells or batteries must be secured against movement within the outer packaging and must be equipped with an effective means to prevent accidental activation
- Each package must withstand a drop test from a height of 1.2m in any orientation without
  - Damage to cells or batteries contained therein;
  - Shifting of the contents so as to allow battery to battery to battery (or cell to cell) contact
  - Release of contents

## Documentation

- Shippers Dangerous Goods Declaration
- Air Way Bill statement
  - Lithium Ion Batteries in Compliance with Section II of PI 966

## Labels

- Shipper phone number must be included on the label



# Battery Rating – Select One

Lithium batteries or cells packed with equipment > Lithium Metal

Cells > 1 g  
Batteries > 2 g

Cells  $\leq$  1 g  
Batteries  $\leq$  2 g





# Shipping Guidance

Lithium batteries or cells packed with equipment > Lithium Metal > Section I

## Shipment

- UN3091
- Packing Instruction 969
- Section I – Restricted – RLM
- Maximum net quantity (Package)
  - Passenger Aircraft – 5 kg
  - Cargo Aircraft Only (C.A.O) – 35 kg
- The number of cells or batteries in each package must not exceed the number required for the equipment's operation, plus two spare sets.
  - A “set” of cells or batteries is the number required to power each piece of equipment.

## Packaging

- Cells and batteries must be completely enclosed in inner packagings then placed in a packaging of the type shown in the packing instruction, that meets the packing group II performance standards, then placed with the equipment in a strong rigid outer packaging; or
- Be completely enclosed in inner packagings then placed with the equipment in a packaging of the type shown in the packing instruction that meets packing group II performance standards.
- The equipment must be secured against movement within the outer packaging and must be equipped with an effective means of preventing accidental activation.

## Documentation

- Shippers Dangerous Goods Declaration
- Air Way Bill statement
  - Dangerous Goods as per associated DGD
  - C.A.O or Cargo Aircraft Only (If applicable)

## Labels

When Applicable:



# Shipping Guidance

Lithium batteries or cells packed with equipment > Lithium Metal > Section II

## Shipment

- UN3091
- Packing Instruction 969
- Section II – Not Restricted - ELM
- Maximum net quantity (Package)
  - Passenger Aircraft – 5 kg
  - Cargo Aircraft Only (C.A.O) – 5 kg
- The number of cells or batteries in each package must not exceed the number required for the equipment's operation, plus two spare sets.
  - A “set” of cells or batteries is the number required to power each piece of equipment.

## Packaging

- Cells and/or batteries must be completely enclosed in inner packagings then placed with the equipment in a strong rigid outer packaging
- The equipment containing the cells or batteries must be secured against movement within the outer packaging and must be equipped with an effective means to prevent accidental activation
- Each package must withstand a drop test from a height of 1.2m in any orientation without
  - Damage to cells or batteries contained therein;
  - Shifting of the contents so as to allow battery to battery to battery (or cell to cell) contact
  - Release of contents

## Documentation

- Shippers Dangerous Goods Declaration
- Air Way Bill statement
  - Lithium Metal Batteries in Compliance with Section II of PI 969

## Labels

- Shipper phone number must be included on the label



# Preapproval Requests

- All shipments that fall under UN3480 and UN3090 require preapproval before being booked with GTA GSM
- To obtain preapproval, the following documentation is required to be sent to GTA GSM to verify the commodity.
  - Lithium cell or battery test summary in accordance with the UN Manual of Tests and Criteria Part III subsection 38.3 of Manual of Tests and Criteria.
  - MSDS issued by the manufacturer.
- For UN3480 Lithium-ion Batteries with a State of Charge (SOC)>30% the following is also required
  - Confirmation of approval from the State of Origin
  - Confirmation of approval from the State of Operator
- All preapproval requests should be sent to [ops@gtagsm.com](mailto:ops@gtagsm.com)





# Contact Us

2710 Britannia Road East  
Cargo 2, Entrance 6  
Suite 236A  
Mississauga, ON L4W 2P7

**Telephone:** 1.877.380.7564

**Email:** [customerservice@gtagsm.com](mailto:customerservice@gtagsm.com)

[www.gtagsm.com](http://www.gtagsm.com)

