

Lithium Batteries by Air

Compliance Summary 2022

ADVISORY DOCUMENT

Reference: IATA Dangerous Goods Regulations 63rd Edition 2022

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Lithium batteries installed in cargo transport unit (UN3536) - **FORBIDDEN**








Refer to Appendix A of the IATA DGR for definitions of Lithium Ion & Metal Batteries

Note: *Manufacturers and distributors of cells or batteries manufactured after 30 June 2003 must make available the test summary as specified in the UN Manual of Tests and Criteria, Part III, sub-section 38.3, paragraph 38.3.5. Reference documents obtained from distributors should show watt hour ratings or lithium content in grams*

Please remember: Commercial shippers of Lithium batteries are required to be trained under the IATA and Australian Civil Aviation Safety Authority (CASA) legislation.



Disclaimer: The intention of this document is not replace the IATA or CASA regulations, merely to aid with the interpretation of the applicable Lithium battery requirements. No user should act on such information without reference to applicable Regulations. Every effort has been made to present accurate, current information but **AIRSAFE** shall not be held responsible for loss, damage or legal action due to errors or omissions, misprints or misinterpretation of the contents.



Lithium Ion Batteries (Rechargeable) UN3480 - PI 965	Section IA FULLY DECLARED DG FORBIDDEN on Passenger Aircraft	Section IB FULLY DECLARED DG FORBIDDEN on Passenger Aircraft
<p align="center">Note: UN 3480 lithium ion batteries are restricted to no more than 30% state of charge (SoC), effective as of 1 April 2016.</p>		
Applicable to: <i>Note: Includes battery packs, modules and rechargers having the purpose of providing a source of power to other equipment.</i>	Batteries over 100 Watts per hour (W/h), Cells over 20 W/h <div style="display: flex; justify-content: space-around; align-items: center;"> <div style="text-align: center;">  Cell (Single unit) </div> <div style="text-align: center;">  Battery (Multiple cells connected) </div> </div>	Batteries no more than 100 W/h, Cells no more than 20 W/h.
Packaging and marking requirements	UN Specification packages to PG II Standard (See PI for types) <ul style="list-style-type: none"> • Protection against short circuit or arching. Inner packages must completely enclose Cell/Battery • UN Number - “UN3480” • Proper shipping name - “Lithium ion batteries” • Shipper and Consignees details in full. 	Strong Rigid Outer packaging (See PI for types) <ul style="list-style-type: none"> • Protection against short circuit or arching. Inner packages must completely enclose Cell/Battery • UN Number - “UN3480” (on handling label) • Proper shipping name - “Lithium ion batteries” • Shipper and Consignees details in full.
Label required	Class 9 + Cargo Aircraft Only <div style="display: flex; justify-content: space-around; align-items: center;">   </div>	Class 9 + Li battery handling label + CAO <div style="display: flex; justify-content: space-around; align-items: center;">    </div>
Quantity allowed	FORBIDDEN - Passenger Aircraft 35 Kg Net per package - Cargo Aircraft only	FORBIDDEN - Passenger Aircraft 10 Kg Net per package - Cargo Aircraft only
Shippers Declaration required	YES, see example on last page	YES, see example on last page (IB in Packing Instruction column after number or in Authorisation column)
AWB/Con-note or Transport Document statement requirements	“Dangerous Goods as per associated DGD - CAO”	“Dangerous Goods as per associated DGD - CAO”
Airline Requirements	RBI - (Restricted Battery ion) Full Acceptance check list required Required on NOTOC	RBI - (Restricted Battery ion) Full Acceptance check list required Required on NOTOC

Note:

From 01 Jan 2022, section II has been removed from PI 965, however batteries may be prepared under the provisions of section II of PI 965 until to 01 April 2022



Lithium Ion Batteries packed with equipment UN3481 - PI 966	<p style="text-align: center;">Section I FULLY DECLARED DG</p>	<p style="text-align: center;">Section II Not subject to all aspects of the DGR</p>
Applicable to:	<p style="text-align: center;">Batteries over 100 Watts per hour (W/h) Cells over 20 W/h</p> <p><i>Note: The maximum number of batteries allowed in the package is the appropriate number required to power the equipment plus two spare sets (set = number of cells or batteries required to power each piece of equipment).</i></p>	<p style="text-align: center;">Batteries no more than 100 W/h Cells no more than 20 W/h</p> <p><i>Note: The maximum number of batteries allowed in the package is the appropriate number required to power the equipment plus two spare sets (set = number of cells or batteries required to power each piece of equipment).</i></p>
Packaging and marking requirements	<p>UN Specification package must meet PG II Standard (See PI for types)</p> <ul style="list-style-type: none"> • Cells / Batteries may be packed in UN spec package then placed with equipment into strong rigid outer packaging, or • Cells / Batteries and equipment all packed in UN spec packaging. • Cells / Batteries must be individually protected and be completely enclosed by inner packaging. • UN Number - “UN3481” • Proper shipping name - “Lithium ion batteries packed with equipment” • Shippers and consignee details in full. 	<p>Strong Rigid Outer packaging (See PI for Types)</p> <ul style="list-style-type: none"> • Inner packages must completely enclose Cells /Battery, • Protected against short circuit or arcing, • Cells / Batteries can be placed in separate inner packages to the equipment, • The equipment and batteries must all be packed in the same outer package.
Label required	Class 9 Lithium battery hazard label 	Lithium battery handling label. (UN 3481 on label) 
Quantity allowed	Maximum net quantity (batteries within package): 5 Kg Net - Passenger Aircraft 35 Kg Net - Cargo Aircraft Only	Maximum net quantity (batteries within package): 5 Kg Net - Passenger Aircraft 5 Kg Net - Cargo Aircraft Only
Shippers Declaration required	<p style="text-align: center;">YES, see example on last page</p>	<p style="text-align: center;">NO</p>
AWB/Con-note or Transport Document statement requirements	“Dangerous Goods as per associated DGD” Include “ CAO ” after the above statement if applicable	The words “Lithium ion batteries in compliance with Section II of PI966”
Airline Requirements	RLI - (Restricted Lithium ion) Full Acceptance check list required. Required on NOTOC	ELI - (Exempt Lithium ion) No check list required. NOT required on NOTOC



Cells

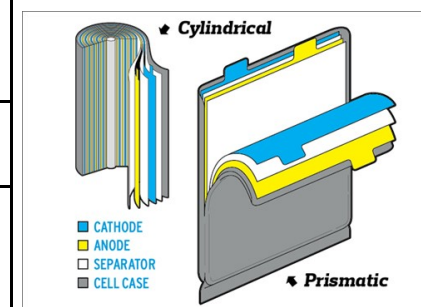


Battery




Lithium Ion Batteries contained in equipment UN3481 - PI 967	Section I FULLY DECLARED DG	Section II Not subject to all aspects of the DGR
Applicable to:	Batteries over 100 Watts per hour (W/h) Cells over 20 W/h	Batteries no more than 100 W/h Cells no more than 20 W/h
Packaging and marking requirements	Strong Rigid Outer packaging (See PI for types, UN Specification packaging not required) <ul style="list-style-type: none"> • Protection against short circuit or arcing and accidental activation. • UN Number - “UN3481” • Proper shipping name - “Lithium ion batteries contained in equipment” • Shippers and consignee details in full. 	Strong Rigid Outer packaging (See PI for Types) <ul style="list-style-type: none"> • Protection against short circuit or arcing and accidental activation.
Label required	Class 9 Lithium battery hazard label 	Lithium battery handling label (UN3481 on label)  Note: The label and AWB statement, does not apply to: - Button cell batteries and circuit boards in equipment; OR - Consignments of no more than 2 packages where each package contains no more than 4 cells or 2 batteries installed in equipment.
Quantity allowed	Maximum net quantity (batteries within package): 5 Kg Net (batteries) - Passenger Aircraft 35 Kg Net (batteries) - Cargo Aircraft only	Maximum net quantity (batteries within package): 5 Kg Net - Passenger Aircraft 5 Kg Net - Cargo Aircraft Only
Shippers Declaration required	YES, see example on last page.	NO
AWB/Con-note or Transport Document statement requirements	“Dangerous Goods as per associated DGD” Include “ CAO ” after the above statement if applicable.	The words “Lithium ion batteries in compliance with Section II of PI967”
Airline Requirements	RLI - (Restricted Lithium ion) Full Acceptance check list required Required on NOTOC	ELI - (Exempt Lithium ion) No check list required NOT required on NOTOC



Inside a lap top battery





Inside lithium cells

Lithium Metal Batteries (Non- Rechargeable) UN3090 - PI 968	Section IA FULLY DECLARED DG FORBIDDEN on Passenger Aircraft	Section IB FULLY DECLARED DG FORBIDDEN on Passenger Aircraft
Applicable to:	Batteries over 2 grams (g) aggregate of Lithium metal Cells over 1 g of Lithium metal.	Batteries no more than 2 g aggregate of lithium metal. Cells no more than 1 g of lithium metal.
Packaging and marking requirements 	UN Specification packages to PG II Standard (See PI for types) <ul style="list-style-type: none"> • Protection against short circuit or arcing. Inner packages must completely enclose Cell/Battery • UN Number - “UN3090” • Proper shipping name - “Lithium metal batteries” • Shipper and Consignees details in full. 	Strong Rigid Outer packaging (See PI for types) <ul style="list-style-type: none"> • Protection against short circuit or arcing. Inner packages must completely enclose Cell/Battery • UN Number - “UN3090” (on handling label) • Proper shipping name - “Lithium metal batteries” • Shipper and Consignees details in full.
Label required	Class 9 + Cargo Aircraft Only 	Class 9 + Li battery handling label + CAO 
Quantity allowed	FORBIDDEN - Passenger Aircraft 35 Kg Net per package - Cargo Aircraft only	FORBIDDEN - Passenger Aircraft 2.5 Kg Net per package - Cargo Aircraft only
Shippers Declaration required	YES, see example on last page	YES, see example on last page (IB in Packing Instruction column after number or in Authorisation Column)
AWB/Con-note or Transport Document statement requirements	“Dangerous Goods as per associated DGD - CAO”	“Dangerous Goods as per associated DGD - CAO”
Airline Requirements	RBM - (Restricted Battery Metal) Full Acceptance check list required Required on NOTOC	RBM - (Restricted Battery Metal) Full Acceptance check list required Required on NOTOC



Note:

From 01 Jan 2022, section II has been removed from PI 968, however batteries may be prepared under the provisions of section II of PI 968 until to 01 April 2022

Lithium Metal Batteries packed with equipment UN3091 - PI 969	Section I FULLY DECLARED DG	Section II Not subject to all aspects of the DGR
Applicable to:	Batteries over 2 grams (g) aggregate of Lithium metal Cells over 1 g of Lithium metal Note: The maximum number of batteries allowed in the package is the appropriate number required to power the equipment plus two spare sets (set = number of cells or batteries required to power each piece of equipment).	Batteries no more than 2 g aggregate of Lithium metal Cells no more than 1 g of Lithium metal Note: The maximum number of batteries allowed in the package is the appropriate number required to power the equipment plus two spare sets (set = number of cells or batteries required to power each piece of equipment).
Packaging and marking requirements	UN Specification package must meet PG II Standard (See PI for types) <ul style="list-style-type: none"> Cells / Batteries may be packed in UN spec package then placed with equipment into strong rigid outer packaging, or Cells / Batteries and equipment all packed in UN spec packaging. Cells / Batteries must be individually protected and be completely enclosed by inner packaging. UN Number - “UN3091” Proper shipping name - “Lithium metal batteries packed with equipment” Shippers and consignee details in full. 	Strong Rigid Outer packaging (See PI for Types) <ul style="list-style-type: none"> Inner packages must completely enclose Cells /Battery, Protected against short circuit or arcing, Cells / Batteries can be placed in separate inner packages to the equipment, The equipment and batteries must all be packed in the same outer package.
Label required	Class 9 Lithium battery hazard label 	Lithium battery handling label (UN 3091 on label) 
Quantity allowed	Maximum net quantity (batteries within package): 5 Kg Net - Passenger Aircraft 35 Kg Net - Cargo Aircraft only	Maximum net quantity (batteries within package): 5 Kg Net - Passenger Aircraft 5 Kg Net - Cargo Aircraft only
Shippers Declaration required	YES, see example on last page	NO
AWB/Con-note or Transport Document statement requirements	“Dangerous Goods as per associated DGD” Include “ CAO ” after the above statement if applicable	The words “Lithium metal batteries in compliance with Section II of PI969”
Airline Requirements	RLM - (Restricted Lithium metal) Full Acceptance check list required, NOTOC required	ELM - (Exempt Lithium metal) No check list required, Not Required on NOTOC



Inside a lithium metal cell

Lithium Metal Batteries contained in equipment UN3091 - PI 970	Section I FULLY DECLARED DG	Section II Not subject to all aspects of the DGR
Applicable to:	Batteries over 2 grams (g) aggregate of Lithium metal Cells over 1 g of Lithium metal	Batteries no more than 2 grams (g) aggregate of Lithium metal Cells no more than 1 g of Lithium metal
Packaging and marking requirements	Strong Outer packaging (See PI for Types, UN Specification packaging not required) <ul style="list-style-type: none"> • Protection against short circuit or arching • UN Number - "UN3091" • Proper shipping name - "Lithium metal batteries contained in equipment" 	Strong Rigid Outer packaging. (See PI for Types) <ul style="list-style-type: none"> • Protection against short circuit or arching and accidental activation.
Label required	Class 9 	Lithium battery handling label (UN 3091 on label)  <i>Note: The label and AWB statement, does not apply to:</i> - Button cell batteries and circuit boards in equipment; OR - Consignments of no more than 2 packages where each package contains no more than 4 cells or 2 batteries installed in equipment.
Quantity allowed	Maximum net quantity (batteries within package): 5 Kg Net - Passenger Aircraft 35 Kg Net - Cargo Aircraft only	Maximum net quantity (batteries within package): 5 Kg Net - Passenger Aircraft 5 Kg Net - Cargo Aircraft only
Shippers Declaration required	YES, see example last page	NO
AWB/Con-note or Transport Document statement requirements	"Dangerous Goods as per associated DGD" Include "CAO" after the above statement if applicable	The words "Lithium metal batteries in compliance with Section II of PI970"
Airline Requirements	RLM - (Restricted Lithium metal) Full Acceptance check list required Required on NOTOC	ELM - (Exempt Lithium metal) No check list required Not Required on NOTOC



Additional Information

NATURE AND QUANTITY OF DANGEROUS GOODS						
Dangerous Goods Identification						
UN or ID No.	Proper Shipping Name	Class or Division (Subsidiary Risk)	Packing Group	Quantity and Type of Packing	Pack Inst.	Authorization
UN3481	Lithium Ion batteries packed with equipment	9		2 Fibreboard boxes x 5Kg	966	
UN3481	Lithium Ion batteries contained in equipment	9		2 Fibreboard boxes x 5Kg	967	
UN3091	Lithium metal batteries packed with equipment	9		2 Fibreboard boxes x 5Kg	969	
UN3091	Lithium metal batteries contained in equipment	9		1 Fibreboard boxes x 5Kg	970	

To calculate watts per hour for Lithium ion

$$\text{Ah (Amperes per hour)} \times \text{V (Volt)} = \text{Wh}$$

Examples of the DGD information required for Li Batteries in compliance with Section I or IA of the Packing Instructions shown

Maximum net per package for Passenger Aircraft = 5 Kg
Maximum net per package for Cargo Aircraft Only = 35 Kg

To assist in aligning the labelling requirements of all modes of transport, the Hazard and Handling label used must be as shown below:

Hazard label:



Handling label:

Requires:
UN number
Tel Number



Telephone number does not need to be 24 hr emergency number but must be for someone who knows about the shipment

Lithium batteries packed without equipment must be separated from classes 1 (other than 1.4S), 2.1, 3, 4.1 and 5.1.

PASSENGER AND CARGO AIRCRAFT	CARGO AIRCRAFT ONLY
Airport of Destination	Shipment Type (Delete non-applicable)
	NON-RADIOACTIVE RADIOACTIVE

NATURE AND QUANTITY OF DANGEROUS GOODS						
Dangerous Goods Identification						
UN or ID No.	Proper Shipping Name	Class or Division (Subsidiary Risk)	Packing Group	Quantity and Type of Packing	Pack Inst.	Authorization
UN3480	Lithium Ion batteries	9		1 Fibreboard box x 5Kg	965	
UN3090	Lithium metal batteries	9		1 Fibreboard box x 35Kg	968	
UN3480	Lithium Ion batteries	9		1 Fibreboard box x 10Kg	965	1B
UN3090	Lithium metal batteries	9		1 Fibreboard box x 2.5Kg	968	1B

Example of the DGD information required for Li Ion Batteries and Li Metal Batteries in compliance with Section IA of the Packing Instructions 965 and 968 respectively.

Maximum net per package for Cargo Aircraft = 35 Kg
FORBIDDEN on PAX aircraft

Example of the DGD information required for Li Ion Batteries and Li Metal Batteries in compliance with Section IB of the Packing Instructions 965 and 968 respectively.

Li Ion Batteries: Maximum net per package for Cargo Aircraft = 10kg
Li Metal Batteries: Maximum net per package for Cargo Aircraft = 2.5kg

FORBIDDEN on PAX aircraft.