

# ***Lithium Batteries by Air***

## ***Compliance Summary 2018***

### **ADVISORY DOCUMENT**

***Reference: IATA Dangerous Goods Regulations 59th Edition 2018***

Packing Instruction 965 - Lithium Ion Batteries (Page 2)

Packing Instruction 966 - Lithium Ion Batteries packed with equipment (Page 3)

Packing Instruction 967 - Lithium Ion Batteries contained in equipment (Page 4)

Packing Instruction 968 - Lithium Metal Batteries (Page 5)

Packing Instruction 969 - Lithium Metal Batteries packed with equipment (Page 6)

Packing Instruction 970 - Lithium Metal Batteries contained in equipment (Page 7)

Declaration completion example and miscellaneous information (Page 8)

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










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 new 2018 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.



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<b>Lithium Ion Batteries</b> (Rechargeable) <b>UN3480 - PI 965</b>	<b>Section IA</b> <b>FULLY DECLARED DG</b>	<b>Section IB</b> <b>Restricted</b>	<b>Section II</b> <b>Not subject to all aspects of the DGR</b>
<i>Note: UN 3480 lithium ion batteries are restricted to no more than 30% state of charge (SoC), effective as of 1 April 2016.</i>			
<b>Applicable to:</b>  <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   Cell (Single unit)  Battery (Multiple cells connected)	Batteries no more than 100 W/h, but <b>more than 2</b> batteries per package,  Cells no more than 20 W/h but <b>more than 8</b> cells per package.	Batteries no more than 100 W/h and <b>no more than 2</b> per package.  Cells no more than 20 W/h and <b>no more than 8</b> per package.  and  Any number of batteries and cells <b>no more than 2.7</b> W/h
<b>Packaging and marking requirements</b>	UN Specification package to PG II Standard Protection against short circuit or arcing. Inner packages must completely enclose Cell/Battery UN Number - "UN3480" Proper shipping name - "Lithium ion batteries"	Strong Rigid Outer packaging (See PI for types) Protection against short circuit or arcing. Inner packages must completely enclose Cell/Battery UN Number - "UN3480" Proper shipping name - "Lithium ion batteries"	Strong Rigid outer packaging (See PI for types) Inner packages must completely enclose Cell/Battery Protection against short circuit or arcing  Must not be offered to the operator in a ULD, must be offered separately to consolidations.
<b>Label required</b>  <i>Note: The new format labels do not become mandatory until 31 December 2018.</i>  <i>(Refer to page 8 for details)</i>	Class 9 + Cargo Aircraft Only   	Class 9 + Li battery handling label + CAO    	Li battery handling label + CAO   
<b>Quantity allowed</b>	FORBIDDEN - Passenger Aircraft 35 Kg Net per package - Cargo Aircraft only  An overpack may contain no more than 1 package of Lithium batteries that have been prepared in accordance with section II.	FORBIDDEN - Passenger Aircraft 10 Kg Net per package - Cargo Aircraft only  An overpack may contain no more than 1 package of Lithium batteries that have been prepared in accordance with section II.	FORBIDDEN - Passenger Aircraft Maximum net quantity for batteries 2.7 W/h or less = 2.5 Kg per package. No limit to the number of cells/batteries Maximum of one package per shipment.  An overpack may contain no more than 1 package of Lithium Ion batteries.
<b>Shippers Declaration required</b>	YES, see example on last page	YES, see example on last page (IB in PI column after number or in Authorisation column)	NO
<b>AWB/Con-note or Transport Document statement requirements</b>	"Dangerous Goods as per attached DGD - CAO"	"Dangerous Goods as per attached DGD - CAO"	The words "Lithium ion batteries in compliance with Section II of PI965 - CAO"
<b>Airline Requirements</b>	<b>RBI</b> - (Restricted Battery ion) Full Acceptance check list required Required on NOTOC	<b>RBI</b> - (Restricted Battery ion) Full Acceptance check list required Required on NOTOC	<b>ELI</b> - (Exempt Lithium ion) No check list required NOT required on NOTOC





<b>Lithium Ion Batteries packed with equipment</b> <b>UN3481 - PI 966</b>	<b>Section I</b> <b>FULLY DECLARED DG</b>	<b>Section II</b> <b>Not subject to all aspects of the DGR</b>
<b>Applicable to:</b>	Batteries over 100 Watts per hour (W/h) Cells over 20 W/h  <i>Note: The maximum number of batteries allowed in the package is the appropriate number required to power the equipment plus two spares.</i>	Batteries no more than 100 W/h Cells no more than 20 W/h  <i>Note: The maximum number of batteries allowed in the package is the appropriate number required to power the equipment plus two spares.</i>
<b>Packaging and marking requirements</b>	UN Specification package to PG II Standard  Inner packages must completely enclose Cell/Battery. Protection against short circuit or arching  Cells and batteries can be in the package with the equipment or in a separate package submitted with the equipment.  UN Number - "UN3481"  Proper shipping name - "Lithium ion batteries packed with equipment"	Strong Rigid Outer packaging (See PI for Types)  Inner packages must completely enclose Cell/Battery  Protection against short circuit or arching  Cells and batteries can be in the package with the equipment or in a separate package submitted with the equipment.
<b>Label required</b>  <i>Note: The new format labels do not become mandatory until 31 December 2018.</i>  <i>(Refer to page 8 for details)</i>	Class 9   OR 	Lithium battery handling label   OR 
<b>Quantity allowed</b>	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
<b>Shippers Declaration required</b>	YES, see example on last page	NO
<b>AWB/Con-note or Transport Document statement requirements</b>	"Dangerous Goods as per attached DGD" Include "CAO" after the above statement if applicable	The words "Lithium ion batteries in compliance with Section II of PI966"
<b>Airline Requirements</b>	<b>RLI</b> - (Restricted Lithium ion) Full Acceptance check list required Required on NOTOC	<b>ELI</b> - (Exempt Lithium ion) No check list required NOT required on NOTOC



Cells

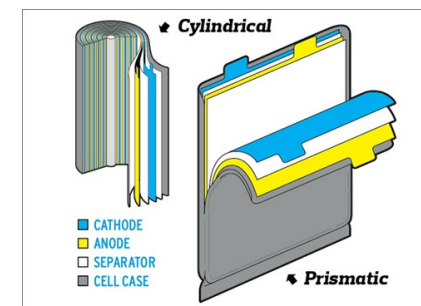


Battery





<b>Lithium Ion Batteries contained in equipment</b> <b>UN3481 - PI 967</b>	<p style="text-align: center;"><b>Section I</b>  <b>FULLY DECLARED DG</b></p>	<p style="text-align: center;"><b>Section II</b>  <b>Not subject to all aspects of the DGR</b></p>
<b>Applicable to:</b>	<p style="text-align: center;">Batteries over 100 Watts per hour (W/h)  Cells over 20 W/h</p>	<p style="text-align: center;">Batteries no more than 100 W/h  Cells no more than 20 W/h</p>
<b>Packaging and marking requirements</b>	<p>Strong Rigid Outer packaging (See PI for types - UN Specification packaging not required)</p> <p>Protection against short circuit or arching</p> <p>UN Number - "UN3481"</p> <p>Proper shipping name - "Lithium ion batteries contained in equipment"</p>	<p>Strong Rigid Outer packaging (See PI for Types)</p> <p>Protection against short circuit or arching</p>
<b>Label required</b>  <i>Note: The new format labels do not become mandatory until 31 December 2018.</i> <i>(Refer to page 8 for details)</i>	<p style="text-align: center;">Class 9</p> <div style="display: flex; justify-content: space-around; align-items: center;">  <span>OR</span>  </div>	<p style="text-align: center;">Lithium battery handling label</p> <div style="display: flex; justify-content: space-around; align-items: center;">  <span>OR</span>  </div> <p><b>Note: The label and AWB statement, does not apply to:</b></p> <ul style="list-style-type: none"> <li>- Button cell batteries and circuit boards in equipment; OR</li> <li>- Consignments of no more than 2 packages where each package contains no more than 4 cells or 2 batteries installed in equipment.</li> </ul>
<b>Quantity allowed</b>	<p>Maximum net quantity (batteries within package):  5 Kg Net (batteries) - Passenger Aircraft  35 Kg Net (batteries) - Cargo Aircraft only</p>	<p>Maximum net quantity (batteries within package):  5 Kg Net - Passenger Aircraft  5 Kg Net - Cargo Aircraft Only</p>
<b>Shippers Declaration required</b>	<p style="text-align: center;">YES, see example on last page.</p>	<p style="text-align: center;">NO</p>
<b>AWB/Con-note or Transport Document statement requirements</b>	<p>"Dangerous Goods as per attached DGD"</p> <p>Include "CAO" after the above statement if applicable.</p>	<p>The words "Lithium ion batteries in compliance with Section II of PI967"</p>
<b>Airline Requirements</b>	<p><b>RLI</b> - (Restricted Lithium ion)  Full Acceptance check list required  Required on NOTOC</p>	<p><b>ELI</b> - (Exempt Lithium ion)  No check list required  NOT required on NOTOC</p>







Inside a lap top battery







Inside lithium cells

<b>Lithium Metal Batteries</b> (Non-rechargeable) <b>UN3090 - PI 968</b>	<b>Section IA</b> <b>FULLY DECLARED DG</b> <b>Forbidden on PAX Aircraft</b>	<b>Section IB</b> <b>Restricted</b> <b>Forbidden on PAX Aircraft</b>	<b>Section II</b> <b>Not subject to all aspects of the DGR, but</b> <b>Forbidden on PAX Aircraft</b>
<b>Applicable to:</b> 	Batteries over 2 grams (g) of Lithium metal Cells over 1 g of Lithium metal	Batteries no more than 2 g of lithium, but <b>more than</b> 2 batteries per package. Cells no more than 1 g of lithium but <b>more than</b> 8 cells per package.	<b>Batteries</b> no more than 2 g of lithium content and <b>no more than</b> 2 per package. <b>Cells</b> no more than 1 g of lithium content and <b>no more than</b> 8 per package. and Any number of batteries & cells with <b>no more than</b> 0.3g lithium content
<b>Packaging and marking requirements</b>	UN Specification package to PG II standard Protection against short circuit or arcing. Inner packages must completely enclose Cell/Battery. UN Number - "UN3090" Proper shipping name - "Lithium metal batteries"	Strong Rigid Outer packaging (See PI for types) Protection against short circuit or arcing. Inner packages must completely enclose Cell/Battery. UN Number - "UN3090" Proper shipping name - "Lithium metal batteries"	Strong Rigid Outer packaging (See PI for types) Inner packages must completely enclose Cell/Battery Protection against short circuit or arcing Must not be offered to the operator in a ULD, must be offered separately to consolidations.
<b>Label required</b> <i>Note: The new format labels do not become mandatory until 31 December 2018.</i> <i>(Refer to page 8 for details)</i>	Class 9 + Cargo Aircraft Only 	Class 9 + Li battery handling label + CAO 	Li battery handling label + CAO 
<b>Quantity allowed</b>	FORBIDDEN - Passenger Aircraft 35 Kg Net per package - Cargo Aircraft only An overpack may contain no more than 1 package of Lithium batteries that have been prepared in accordance with section II.	FORBIDDEN - Passenger Aircraft 2.5 Kg Net per package - Cargo Aircraft only An overpack may contain no more than 1 package of Lithium batteries that have been prepared in accordance with section II.	FORBIDDEN - Passenger Aircraft Maximum net quantity for batteries 0.3 g or less = 2.5 Kg per package. No limit to the number of cells/batteries Maximum of one package per shipment. An overpack may contain no more than 1 package of Lithium Metal batteries.
<b>Shippers Declaration required</b>	YES, see example on last page	YES, see example on last page (IB in PI column after number or in Authorisation Column)	NO
<b>AWB/Con-note or Transport Document statement requirements</b>	"Dangerous Goods as per attached DGD - CAO"	"Dangerous Goods as per attached DGD - CAO"	The words "Lithium metal batteries in compliance with Section II of PI968 - CAO".
<b>Airline Requirements</b>	<b>RBM</b> - (Restricted Batteries Metal) Full Acceptance check list required Required on NOTOC	<b>RBM</b> - (Restricted Batteries Metal) Full Acceptance check list required Required on NOTOC	<b>ELM</b> - (Exempt Lithium metal) No check list required Not Required on NOTOC

Lithium Metal Batteries packed with equipment UN3091 - PI 969	Section I FULLY DECLARED DG	Section II Not subject to all aspects of the DGR
<b>Applicable to:</b>	Batteries over 2 grams (g) of Lithium metal Cells over 1 g of Lithium metal  <b>Note: The maximum number of batteries allowed in the package is the appropriate number required to power the equipment plus two spares.</b>	Batteries no more than 2 g of Lithium metal Cells no more than 1 g of Lithium metal  <b>Note: The maximum number of batteries allowed in the package is the appropriate number required to power the equipment plus two spares.</b>
<b>Packaging and marking requirements</b>	UN Specification package to PG II standards <ul style="list-style-type: none"> <li>Protection against short circuit or arcing. Inner packages must completely enclose Cell/Battery.</li> <li>Cells and batteries can be in the package with the equipment or in a separate package submitted with the equipment.</li> </ul> UN Number - "UN3091" Proper shipping name - "Lithium metal batteries packed with equipment"	Strong Rigid Outer packaging (See PI for Types) Inner packages must completely enclose Cell/Battery Protection against short circuit or arcing Cells and batteries can be in the package with the equipment or in a separate package submitted with the equipment.
<b>Label required</b> <i>Note: The new format labels do not become mandatory until 31 December 2018.</i> <i>(Refer to page 8 for details)</i>	Class 9  OR 	Lithium battery handling label  OR 
<b>Quantity allowed</b>	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
<b>Shippers Declaration required</b>	YES, see example on last page	NO
<b>AWB/Con-note or Transport Document statement requirements</b>	"Dangerous Goods as per attached DGD" Include "CAO" after the above statement if applicable	The words "Lithium metal batteries in compliance with Section II of PI969"
<b>Airline Requirements</b>	<b>RLM</b> - (Restricted Lithium metal) Full Acceptance check list required Required on NOTOC	<b>ELM</b> - (Exempt Lithium metal) No check list required Not Required on NOTOC



Inside a lithium metal cell

<b>Lithium Metal Batteries contained in equipment</b> <b>UN3091 - PI 970</b>	<p style="text-align: center;"><b>Section I</b> <b>FULLY DECLARED DG</b></p>	<p style="text-align: center;"><b>Section II</b> <b>Not subject to all aspects of the DGR</b></p>
<b>Applicable to:</b>	Batteries over 2 grams (g) of Lithium metal Cells over 1 g of Lithium metal	Batteries no more than 2 grams (g) of Lithium metal Cells no more than 1 g of Lithium metal
<b>Packaging and marking requirements</b>	Strong Outer packaging (See PI for Types) (UN Specification packaging not required) Protection against short circuit or arcing UN Number - "UN3091" Proper shipping name - "Lithium metal batteries contained in equipment"	Strong Rigid Outer packaging. (See PI for Types) Protection against short circuit or arcing
<b>Label required</b>  <i>Note: The new format labels do not become mandatory until 31 December 2018.</i> <i>(Refer to page 8 for details)</i>	<p style="text-align: center;">Class 9</p> <div style="display: flex; justify-content: space-around; align-items: center;">  <span>OR</span>  </div>	<p style="text-align: center;">Lithium battery handling label</p> <div style="display: flex; justify-content: space-around; align-items: center;">  <span>OR</span>  </div> <p><i>Note: The label and AWB statement, does not apply to:</i></p> <ul style="list-style-type: none"> <li>- Button cell batteries and circuit boards in equipment; OR</li> <li>- Consignments of no more than 2 packages where each package contains no more than 4 cells or 2 batteries installed in equipment.</li> </ul>
<b>Quantity allowed</b>	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
<b>Shippers Declaration required</b>	<p style="text-align: center;">YES, see example last page</p>	<p style="text-align: center;">NO</p>
<b>AWB/Con-note or Transport Document statement requirements</b>	"Dangerous Goods as per attached DGD" Include "CAO" after the above statement if applicable	The words "Lithium metal batteries in compliance with Section II of PI970"
<b>Airline Requirements</b>	<b>RLM</b> - (Restricted Lithium metal) Full Acceptance check list required Required on NOTOC	<b>ELM</b> - (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)	Pack-ing Group	Quantity and Type of Packing	Pack Inst.	Author-ization
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

Ah (Amperes per hour) x V (Volt) = 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, a new format for both the Hazard and Handling labels is being introduced for Lithium Batteries,

Hazard label:



Handling label:



Requires:  
UN number  
Tel Number

The use of these labels is not mandatory until 31 December 2018, until then the use of the current labels is acceptable.

Segregation of Lithium batteries and classes 1 (other than 1.4S), 2.1, 3, 4.1 and 5.1 is recommended from 01 Jan 18 and becomes mandatory from 01 Jan 19.

<del>PASSENGER</del> <input checked="" type="checkbox"/> <del>CARGO</del>	<del>AND CARGO</del> <input checked="" type="checkbox"/> <del>AIRCRAFT</del>
<del>AIRCRAFT</del> <input checked="" type="checkbox"/> <del>ONLY</del>	
Airport of Destination	
Shipment Type (Delete non-applicable)	
NON-RADIOACTIVE	<del>RADIOACTIVE</del>

NATURE AND QUANTITY OF DANGEROUS GOODS						
Dangerous Goods Identification						
UN or ID No.	Proper Shipping Name	Class or Division (Subsidiary Risk)	Pack-ing Group	Quantity and Type of Packing	Pack Inst.	Author-ization
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.**