

Lithium Ion, Lithium Metal and Sodium Ion Batteries Guide for Air Cargo Transportation

Battery Type Description

- ▶ **Lithium Ion Batteries:** rechargeable and their capacity measures by **Watt Hour**. (e.g. 10, 45, 750, ... Wh)
- ▶ **Lithium Metal batteries:** non-rechargeable and their capacity measures by **gram of lithium content**. (e.g. 0.2, 2.1 gr)
- ▶ **Sodium Ion Batteries:** rechargeable and their capacity measures by **Watt Hour**. (e.g. 10, 45, 750, ... Wh)

The proper shipping name and UN number will be assigned based on the following configurations, each with its own Packing Instructions:

- 1 Battery(ies) by itself (loose or spare)
- 2 Battery(ies) packed with equipment
- 3 Battery(ies) contained in equipment
- 4 Vehicle (Any equipment for one or more standing or seated person(s))

UN 3480 Lithium Ion Batteries	UN 3090 Lithium Metal Batteries	UN 3551 Sodium Ion Batteries	UN 3556 Vehicle, lithium ion battery powered
UN 3481 Lithium Ion Batteries Packed with equipment	UN 3091 Lithium Metal Batteries Packed with equipment	UN 3552 Sodium Ion Batteries Packed with equipment	UN 3557 Vehicle, lithium metal battery powered
UN 3481 Lithium Ion Batteries contained in equipment	UN 3091 Lithium Metal Batteries contained in equipment	UN 3552 Sodium Ion Batteries contained equipment	UN 3558 Vehicle, Sodium ion battery powered

Proper Shipping Name	UN Number	Packing Instruction	PI Section	IMP Code	Package Requirement	State of Charge	DGD	AWB	Class 9 hazard label	Battery Mark	Acc. Checklist NOTOC
Lithium Ion Batteries	UN 3480	PI 965	Section IA Cells > 20 Wh, Batteries > 100 Wh	RBI CAO	• UN package meeting PG II • CAO → 35 kg	Must not exceeding 30% of their rated capacity	YES	Handling info: DG Statement		N/A	Acc. Checklist: YES NOTOC: YES
			Section IB Cells ≤ 20 Wh, Batteries ≤ 100 Wh	RBI CAO	• Strong rigid outer • CAO → 10 kg	Must not exceeding 30% of their rated capacity	YES	Handling info: DG Statement		UN3480	Acc. Checklist: YES NOTOC: YES
Lithium Ion Batteries Packed with equipment	UN 3481	PI 966	Section I Cells > 20 Wh, Batteries > 100 Wh	RLI	• UN package meeting PG II • PAX → 5 kg, CAO → 35 kg • Battery of equipment plus not more than 2 spare set	Must not exceeding 30% of their rated capacity	YES	Handling info: DG Statement		N/A	Acc. Checklist: YES NOTOC: YES
			Section II Cells ≤ 20 Wh, Batteries ≤ 100 Wh	ELI	• Strong rigid outer • PAX → 5 kg, CAO → 5 kg • Battery of equipment plus not more than 2 spare set	Must not exceeding 30% of their rated capacity	N/A	Nature and quantity: "Lithium ion batteries in compliance with Section II of PI 966"	N/A	UN3481	Acc. Checklist: NA NOTOC: NA
Lithium Ion Batteries contained in equipment	UN 3481	PI 967	Section I Cells > 20 Wh, Batteries > 100 Wh	RLI	• Strong rigid outer • PAX → 5 kg, CAO → 35 kg	Should not exceeding 30% of their rated capacity or 25% of an indicated battery capacity	YES	Handling info: DG Statement		N/A	Acc. Checklist: YES NOTOC: YES
			Section II Cells ≤ 20 Wh, Batteries ≤ 100 Wh	ELI	• Strong rigid outer • PAX → 5 kg, CAO → 5 kg	Should not exceeding 30% of their rated capacity or 25% of an indicated battery capacity	N/A	Nature and quantity: "Lithium ion batteries in compliance with Section II of PI 967"	N/A	UN3481	Acc. Checklist: NA NOTOC: NA

PI 967, Section II: The lithium battery mark and AWB statement are not applicable when packages contain only button cell batteries installed in equipment, or when a shipment includes two packages or fewer, each containing no more than four cells or two batteries installed in equipment.

Proper Shipping Name	UN Number	Packing Instruction	PI Section	IMP Code	Package Requirement	State of Charge	DGD	AWB	Class 9 hazard label	Battery Mark	Acc. Checklist NOTOC
Lithium Metal Batteries	UN 3090	PI 968	Section IA Cells > 1 gr, Batteries > 2 gr or exceeding quantities in section IB	RBM CAO	• UN package meeting PG II • CAO → 35 kg		YES	Handling info: DG Statement		N/A	Acc. Checklist: YES NOTOC: YES
			Section IB Cells ≤ 1 gr, Batteries ≤ 2 gr	RBM CAO	• Strong rigid outer • CAO → 2.5 kg		YES	Handling info: DG Statement		UN3090	Acc. Checklist: YES NOTOC: YES
Lithium Metal Batteries Packed with equipment	UN 3091	PI 969	Section I Cells > 1 gr, Batteries > 2 gr	RLM	• UN package meeting PG II • PAX → 5 kg, CAO → 35 kg • Battery of equipment plus not more than 2 spare sets • Must be packed in intermediate or outer rigid metal otherwise, must be accepted as CAO		YES	Handling info: DG Statement		N/A	Acc. Checklist: YES NOTOC: YES
			Section II Cells ≤ 1 gr, Batteries ≤ 2 gr	ELM	• Strong rigid outer • PAX → 5 kg, CAO → 5 kg • Battery of equipment plus not more than 2 spare set		N/A	Nature and quantity: "Lithium metal batteries in compliance with Section II of PI 969"	N/A	UN3091	Acc. Checklist: NA NOTOC: NA
Lithium Metal Batteries contained in equipment	UN 3091	PI 970	Section I Cells > 1 gr, Batteries > 2 gr	RLM	• Strong rigid outer • PAX → 5 kg, CAO → 35 kg		YES	Handling info: DG Statement		N/A	Acc. Checklist: YES NOTOC: YES
			Section II Cells ≤ 1 gr, Batteries ≤ 2 gr	ELM	• Strong rigid outer • PAX → 5 kg, CAO → 5 kg		N/A	Nature and quantity: "Lithium metal batteries in compliance with Section II of PI 970"	N/A	UN3091	Acc. Checklist: NA NOTOC: NA

PI 970, Section II: The lithium battery mark and AWB statement are not applicable when packages contain only button cell batteries installed in equipment, or when a shipment includes two packages or fewer, each containing no more than four cells or two batteries installed in equipment.

Proper Shipping Name	UN Number	Packing Instruction	PI Section	IMP Code	Package Requirement	State of Charge	DGD	AWB	Class 9 hazard label	Battery Mark	Acc. Checklist NOTOC
Sodium ion batteries	UN 3551	PI 976	N/A	RBI CAO	• UN package meeting PG II • CAO → 35 kg	Must not exceeding 30% of their rated capacity	YES	Handling info: DG Statement		N/A	Acc. Checklist: YES NOTOC: YES
Sodium ion batteries packed with equipment	UN 3552	PI 977	Section I Cells > 20 Wh, Batteries > 100 Wh	RLI	• UN package meeting PG II • PAX → 5 kg, CAO → 35 kg • Battery of equipment plus not more than 2 spare set		YES	Handling info: DG Statement		N/A	Acc. Checklist: YES NOTOC: YES
			Section II Cells ≤ 20 Wh, Batteries ≤ 100 Wh	ELI	• Strong rigid outer • PAX → 5 kg, CAO → 5 kg • Battery of equipment plus not more than 2 spare set		N/A	Nature and quantity: "Sodium ion batteries in compliance with Section II of PI 977"	N/A	UN 3552	Acc. Checklist: NA NOTOC: NA
Sodium ion batteries contained in equipment	UN 3552	PI 978	Section I Cells > 20 Wh, Batteries > 100 Wh	RLI	• Strong rigid outer • PAX → 5 kg, CAO → 35 kg		YES	Handling info: DG Statement		N/A	Acc. Checklist: YES NOTOC: YES
			Section II Cells ≤ 20 Wh, Batteries ≤ 100 Wh	ELI	• Strong rigid outer • PAX → 5 kg, CAO → 5 kg		N/A	Nature and quantity: "Sodium ion batteries in compliance with Section II of PI 978"	N/A	UN 3552	Acc. Checklist: NA NOTOC: NA

Proper Shipping Name	UN Number	Packing Instruction	IMP Code	Package Requirement	State of Charge	DGD	AWB	Class 9 hazard label	Acc. Checklist NOTOC
Vehicle, lithium ion battery powered	UN 3556			• PAX → No limit, CAO → No limit	▶ If Cells > 20 Wh, Batteries > 100 Wh: Must not exceeding 30% of their rated capacity				
Vehicle, lithium metal battery powered	UN 3557	PI 952	RVB	• batteries must be installed and securely fastened in the battery holder, or • If the battery is removed, it must be packed separate from the vehicle, according to UN 3481, PI 966, or UN 3091, PI 969 or UN 3552 PI 977 where applicable	▶ If Cells ≤ 20 Wh, Batteries ≤ 100 Wh: Should not exceeding 30% of their rated capacity or 25% of an indicated battery capacity	YES	Handling info: DG Statement		Acc. Checklist: YES NOTOC: YES
Vehicle, Sodium ion battery powered	UN 3558								

Note 1: Refer to the DGR for complete details.
Note 2: Ensure compliance with each airline's specific variations.