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1. Introduction

Transport of lithium ion batteries is in the scope of Dangerous Goods Transport Regulations. Therefore many specific requirements have to be respected for their transport. The following recommendations have been created to provide initial practical guidance to the regulations of the transport of lithium ion batteries.

It refers to the commercial transport by

- Road / Rail (ADR/RID)
- Seafreight (IMDG)
- Airfreight (IATA)

Lithium ion batteries are classified as follows:

- UN3480 Lithium Ion batteries
- UN3481 Lithium Ion batteries contained in equipment
- UN3481 Lithium Ion batteries packed with equipment

Especially the watt-hour rating and other conditions classify which dangerous goods regulations must be taken into account for the transport of lithium ion batteries. Please refer to the product data sheet.

For all shipments, it is required that all personnel involved in the preparation and transport of lithium ion cells or batteries receive adequate instruction on these requirements or Dangerous Goods training.

In individual cases, a dangerous goods expert should be consulted. Local authorities are responsible for the interpretation and implementation of the relevant regulations. They can make decisions differing from this guidelines. Therefore, no liability can be assumed for the content and the completeness of this document.

2. Provisions for Lithium Batteries carried by Passengers on Aircrafts

Certain restrictions apply to the carriage of lithium metal and lithium ion batteries even when carried by passengers as baggage. Only batteries that have successfully passed the Tests outlined in Part III, Sub Section 38.3 of the UN Manual of tests and criteria may be carried.

TABLE 2.3.A
Provisions for Dangerous Goods Carried by Passengers or Crew
(Subsection 2.3)

Dangerous goods must not be carried in or as passengers or crew, checked or carry-on baggage, except as otherwise provided below. Dangerous goods permitted in carry-on baggage are also permitted "on one's person", except where otherwise specified.

The pilot-in-command must be informed of the location				
Permitted in or as carry-on baggage				
Permitted in or as checked baggage				
The approval of the operator is required				
Alcoholic beverages , when in retail packagings, containing more than 24% but not more than 70% alcohol by volume, in receptacles not exceeding 5 L, with a total net quantity per person of 5 L.	NO	YES	YES	NO
Ammunition (cartridges for weapons) , securely packaged (in Div. 1.4S, UN 0012 or UN 0014 only), in quantities not exceeding 5 kg gross weight per person for that person's own use. Allowances for more than one person must not be combined into one or more packages.	YES	YES	NO	NO
Avalanche rescue backpack , one (1) per person, containing a cartridge of compressed gas in Div. 2.2. May also be equipped with a pyrotechnic trigger mechanism containing less than 200 mg net of Div. 1.4S. The backpack must be packed in such a manner that it cannot be accidentally activated. The airbags within the backpacks must be fitted with pressure relief valves.	YES	YES	YES	NO
Batteries, spare/loose, including lithium metal or lithium ion cells or batteries , for portable electronic devices must be carried in carry-on baggage only. These batteries must be individually protected to prevent short circuits.	NO	NO	YES	NO

3. Transport regulations for Dangerous Goods

Please refer to the listed regulations for further and detailed information:

ADR: European Agreement concerning the International Carriage of Dangerous Goods by Road,

49 CFR: Code of Federal Regulations, DOT, PHMSA is responsible for regulating movement of hazardous materials by all modes of transportation within the US.

IATA DGR: International Air Transport Association, Dangerous Goods Regulations,

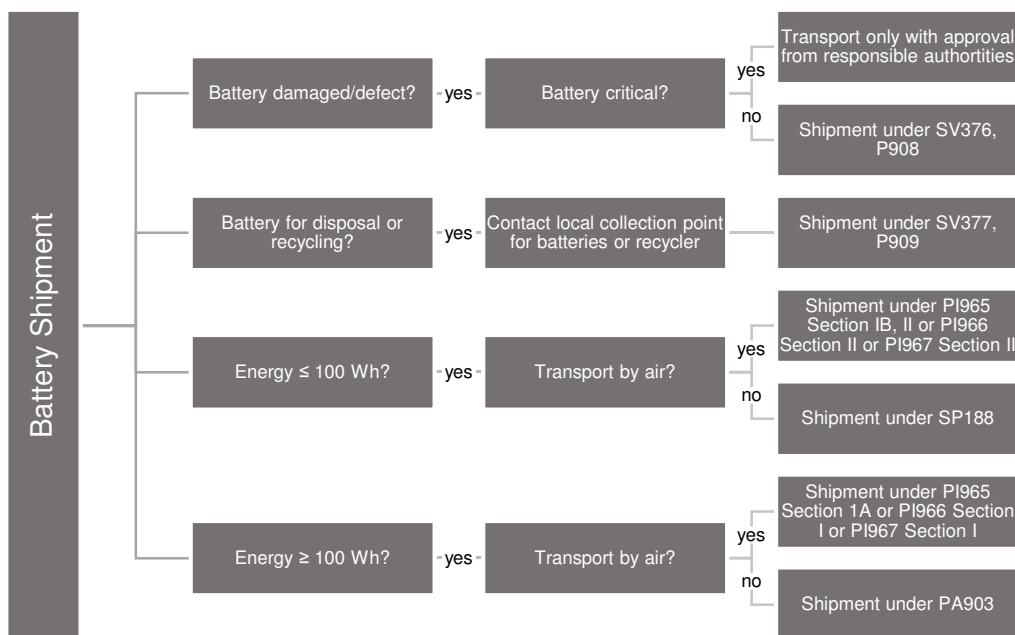
ICAO: International Civil Aviation Organization, Technical Instructions for the Safe Transport of Dangerous Goods by Air,

IMDG Code: International Maritime Dangerous Goods Code,

RID: International Statutory Order on the Conveyance of Dangerous Goods by Rail,

UN: United Nations Recommendations on the Transport of Dangerous Goods

4. Determine the applicable Packaging Instruction



5. UN Transportation Testing (UN DOT 38.3) for Lithium Batteries

Nearly all lithium batteries are required to pass section 38.3 of the UN Manual of Tests and Criteria (UN Transportation Testing) with the following procedure:

- T1 – Altitude Simulation (Primary and Secondary Cells and Batteries)
- T2 – Thermal Test (Primary and Secondary Cells and Batteries)
- T3 – Vibration (Primary and Secondary Cells and Batteries)
- T4 – Shock (Primary and Secondary Cells and Batteries)
- T5 – External Short Circuit (Primary and Secondary Cells and Batteries)
- T6 – Impact (Primary and Secondary Cells)
- T7 – Overcharge (Secondary Batteries)
- T8 – Forced Discharge (Primary and Secondary Cells)

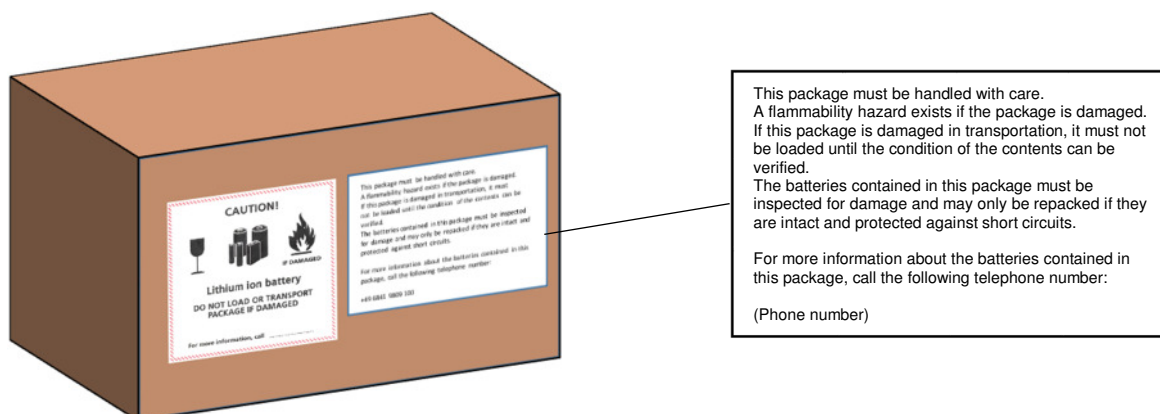
6. Shipping Guidelines

6.1. Shipment of Lithium Ion Batteries ≤ 100 Wh by Truck / Rail (ADR/RID), Sea Freight (IMDG)

A passed transportation test according section 38.3 of the UN Manual of Tests and Criteria is required!

	Truck / Rail (ADR/RID), Sea Freight (IMDG)		
	For lithium ion cell the Watt-hour rating is not more than 20 Wh. For lithium ion battery the Watt-hour rating is not more than 100 Wh. Lithium ion batteries subject to this provision shall be marked with the Watt-hour rating on the outside case, except those manufactured before 1 January 2009		
Packing Instructions	ADR/RID SP188, IMDG SP188		
Transportation Mode	Batteries (without equipment)	Batteries packed with equipment	Batteries contained in equipment
			
Max. Quantity	none		
Weight Limit	30 kg gross weight per packaging		
Packaging	Cells and batteries, except when installed in equipment, shall be packed in inner packagings that completely enclose the cell or battery. Cells and batteries shall be protected so as to prevent short circuits. This includes protection against contact with conductive materials within the same packaging that could lead to a short circuit. The inner packagings shall be packed in strong outer packagings. Each package shall be capable of withstanding a 1.2 m drop test in any orientation without damage to cells or batteries contained therein, without shifting of the contents so as to allow battery to battery (or cell to cell) contact and without release of contents.		
Marking	Minimum dimensions: 120 x 110 mm 		
Sea Freight Container-Marking	Except for packages containing button cell batteries installed in equipment (including circuit boards), or no more than four cells installed in equipment or no more than two batteries installed in equipment, each package shall be marked with the following: Minimum dimensions: 120 x 110 mm 		
Transport Document	Except for packages containing button cell batteries installed in equipment (including circuit boards), or no more than four cells installed in equipment or no more than two batteries installed in equipment, each package shall be accompanied with a document including the following: (i) an indication that the package contains "lithium metal" or "lithium ion" cells or batteries, as appropriate; (ii) an indication that the package shall be handled with care and that a flammability hazard exists if the package is damaged; (iii) an indication that special procedures shall be followed in the event the package is damaged, to include inspection and repacking if necessary; and (iv) shipper's telephone number for additional information		
Miscellaneous	Work instruction of involved staff		

6.1.1. Example: Packaging containing batteries ≤ 100 Wh, SP188



Max. content: 30 Kg G (G = gross weight) per packaging

Shipping Guidelines for Lithium Ion Batteries

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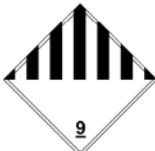
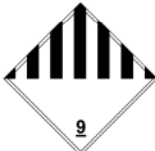
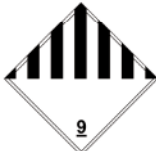
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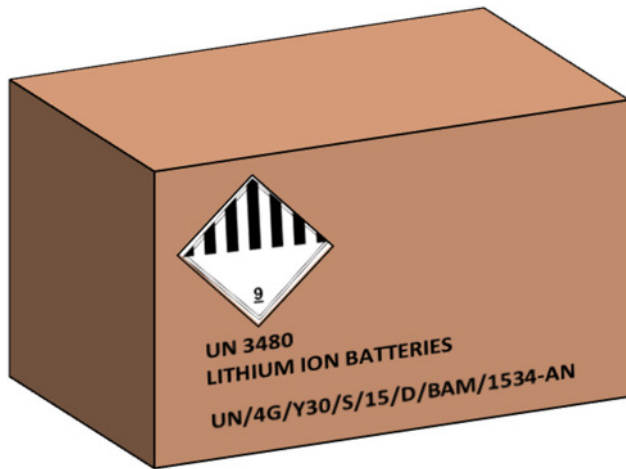


6.2. Shipment of Lithium Ion Batteries > 100 Wh by Truck / Rail (ADR/RID), Sea Freight (IMDG)

A passed transportation test according section 38.3 of the UN Manual of Tests and Criteria is required!

	Truck / Rail (ADR/RID), Sea Freight (IMDG)		
	For lithium ion cell the Watt-hour rating is more than 20 Wh. For lithium ion battery the Watt-hour rating is more than 100 Wh.		
Packing Instructions	ADR/RID P903 IMDG P903		
Transportation Mode	Batteries (without equipment) 	Batteries packed with equipment 	Batteries contained in equipment 
Max. Quantity	none		
Weight Limit	ADR 1.1.3.6: max. 333 kg / per transport unit (truck incl. trailer) If exceeding weight limit, additional requirements to the carrier required		
Packaging	Cells or batteries shall be packed in packagings so that the cells or batteries are protected against damage that may be caused by the movement or placement of the cells or batteries within the packaging. Packagings shall conform to the packing group II performance level. Batteries must be placed in inner packaging that completely encloses the battery, batteries must be protected to prevent short circuits. UN approved packaging (Packing Group II: e.g. UN/4G/Y30/...) Cells or batteries shall be packed in packagings so that the cells or batteries are protected against damage that may be caused by the movement or placement of the cells or batteries within the packaging. Packagings shall conform to the packing group II performance level. Batteries must be placed in inner packaging that completely encloses the battery, batteries must be protected to prevent short circuits. UN approved packaging (Packing Group II: e.g. UN/4G/Y30/...) Packagings conforming to the requirements of this packing instruction, then placed with the equipment in an outer packaging; or Packagings that completely enclose the cells or batteries, then placed with equipment in a packaging conforming to the requirements of this packing instruction. The equipment shall be secured against movement within the outer packaging. For the purpose of this packing instruction, "equipment" means apparatus requiring the lithium metal or lithium ion cells or batteries with which it is packed for its operation. Strong outer packagings constructed of suitable material, and of adequate strength and design in relation to the packaging capacity and its intended use. They shall be constructed in such a manner as to prevent accidental operation during carriage. Large equipment can be offered for carriage unpackaged or on pallets when the cells or batteries are afforded equivalent protection by the equipment in which they are contained. Devices such as radio frequency identification (RFID) tags, watches and temperature loggers, which are not capable of generating a dangerous evolution of heat, may be carried when intentionally active in strong outer packagings. Cells or batteries shall be protected against short circuit. In addition for cells or batteries with a gross mass of 12 kg or more employing a strong, impact resistant outer casing, and assemblies of such cells or batteries: (a) Strong outer packagings; (b) Protective enclosures (e.g. in fully enclosed or wooden slatted crates); or (c) Pallets or other handling devices. Cells or batteries shall be secured to prevent inadvertent movement, and the terminals shall not support the weight of other superimposed elements.		
Marking	Label (10x10 cm)  ADR: UN 3480 IMDG: UN 3480 LITHIUM ION BATTERIES	Label (10x10 cm)  ADR: UN 3481 IMDG: UN 3481 LITHIUM ION BATTERIES PACKED WITH EQUIPMENT	Label (10x10 cm)  ADR: UN 3481 IMDG: UN 3481 LITHIUM ION BATTERIES CONTAINED IN EQUIPMENT
Sea Freight Container-Marking	CONTAINER-PLACARDS (min. 25x25 cm) 		
Transport Document	UN 3480, LITHIUM ION BATTERIES, 9, (E) Number of packages and packaging type (e.g. 1 Fibreboard box) Battery weight (e.g. xx kg), Transport category 2 Shipper & consignee's address Sea freight (IMDG): (language English) IMO-DANGEROUS GOODS DECLARATION (SOLAS 74, KAP. VII, REG 5, MARPOL 73/79, ANNEX III REG. 4 OF IMDG-CODE)	UN 3481, LITHIUM ION BATTERIES PACKED WITH EQUIPMENT, 9, (E) Number of packages and packaging type (e.g. 1 Fibreboard box) Battery weight (e.g. xx kg) Transport category 2 Shipper & consignee's address Sea freight (IMDG): (language English) IMO-DANGEROUS GOODS DECLARATION (SOLAS 74, KAP. VII, REG 5, MARPOL 73/79, ANNEX III REG. 4 OF IMDG-CODE)	UN 3481, LITHIUM ION BATTERIES CONTAINED IN EQUIPMENT, 9, (E) Number of packages and packaging type (e.g. 1 Fibreboard box) Battery weight (e.g. xx kg) Transport category 2 Shipper & consignee's address Sea freight (IMDG): (language English) IMO-DANGEROUS GOODS DECLARATION (SOLAS 74, KAP. VII, REG 5, MARPOL 73/79, ANNEX III REG. 4 OF IMDG-CODE)
Miscellaneous	Work instruction of involved staff		

6.2.1. Example: Packaging containing batteries > 100 Wh, UN3480, P903



Max. content: as per UN packaging (e.g. Y30 = 30 Kg G)

6.2.2. Example: Packaging containing batteries > 100 Wh, UN3480, P903, overpack used



Max. content: 333 Kg G / shipment (Truck), if exceeding, additional requirements to the carrier will be needed

6.3. Shipment of Lithium Ion Batteries ≤ 100 Wh by Air Freight (IATA)

A passed transportation test according section 38.3 of the UN Manual of Tests and Criteria is required!

For IATA **PI965** SEC IB and II only: Lithium ion cells and batteries must be offered for transport at a state of charge (SoC) not exceeding 30% of their rated design capacity!

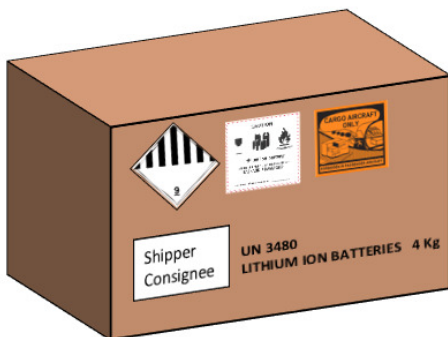
Airfreight (IATA)				
For lithium ion cell the Watt-hour rating is not more than 20 Wh. For lithium ion battery the Watt-hour rating is not more than 100 Wh. Lithium ion batteries subject to this provision shall be marked with the Watt-hour rating on the outside case, except those manufactured before 1 January 2009				
Packing Instructions Transportation Mode	IATA PI965 Section IB Batteries (without equipment)	IATA PI965 Section II	IATA PI966 Section II Batteries packed with equipment	IATA PI967 Section II Batteries contained in equipment
				
Max. Quantity	none (more than 8 cells or 2 batteries per packaging)	8 cells or 2 batteries per packaging	number required for equipment plus 2 spare	none
Weight Limit PAX Weight Limit CAO	prohibited 10 kg net per packaging	prohibited 8 cells or 2 batteries per packaging	5 kg net battery weight per packaging	
Packaging	Batteries must be placed in inner packaging that completely encloses the battery Batteries must be protected to prevent short circuits Batteries must be secured against movement within the outer packaging 1.2m drop test	Batteries must be placed in inner packaging that completely encloses the battery Batteries must be protected to prevent short circuits Batteries must be secured against movement within the outer packaging 1.2m drop test Not more than one (1) package complying with the requirements of Section II may be placed in an overpack.	Batteries must be placed in inner packaging that completely encloses the battery Batteries must be protected to prevent short circuits Batteries must be secured against movement within the outer packaging 1.2m drop test	Batteries must be secured against movement within the outer packaging and must be protected to prevent short circuits. Equipment containing batteries must be secured and packed to prevent unintended operation during transport Strong outer packaging (cardboard box)
Marking	UN 3480, Lithium ion batteries, battery weight (e.g net weight xx kg) Shipper-/Consignee's address  	 	 	Up to 2 batteries per packaging: no battery handling label required More than 2 batteries per packaging: battery handling label required 
Transport Document	Caution statement: (language English) "Transport according IATA-DGR, PI965 Section IB - package shall be handled carefully, in case of damage a risk of flammability exists. If the package is damaged, it must be quarantined, inspected and repacked. For more information, please call ... (phone number)" Shipper's Declaration for Dangerous Goods: UN 3480 Lithium ion batteries, 9, //..... Fibreboard box(es) x kg // 965 // IB	Caution statement: (language English) "Transport according IATA DGR, PI965 Section II - package shall be handled carefully, in case of damage a risk of flammability exists. If the package is damaged, it must be quarantined, inspected and repacked. For more information, please call ... (phone number)"	Caution statement: (language English) "Transport according IATA DGR, PI966 Section II - package shall be handled carefully, in case of damage a risk of flammability exists. If the package is damaged, it must be quarantined, inspected and repacked. For more information, please call ... (phone number)"	Up to 2 batteries per packaging: no caution statement required. More than 2 batteries per packaging: caution statement required "Transport according IATA DGR, PI967 Section II - package shall be handled carefully, in case of damage a risk of flammability exists. If the package is damaged, it must be quarantined, inspected and repacked. For more information, please call ... (phone number)"
Information on Air Waybill	Dangerous Goods as per attached DGD - Cargo Aircraft only	"Lithium ion batteries in compliance with Section II of PI 965" and "Cargo Aircraft Only" or "CAO" must be included on the air waybill, when an air waybill is used. The information should be shown in the "Nature and Quantity of Goods" box of the air waybill.	"Lithium ion batteries in compliance with Section II of PI966" The information should be shown in the "Nature and Quantity of Goods" box of the air waybill.	only if more than 2 batteries per package: "Lithium ion batteries in compliance with Section II of PI967" The information should be shown in the "Nature and Quantity of Goods" box of the air waybill.
Miscellaneous	Official IATA-Training by authorized trainer required If not available, please contact IATA authorized expert	Work instruction of involved staff Batteries < 2.7 Wh can be shipped according PI965 Section II in unlimited quantities. Max. weight per packaging 2.5 kg (battery weight)		
Special Provisions: A88, A99, A154, A164, A183, A201				

6.3.1. Example: Packaging containing batteries ≤ 100 Wh, PI 965, SEC II



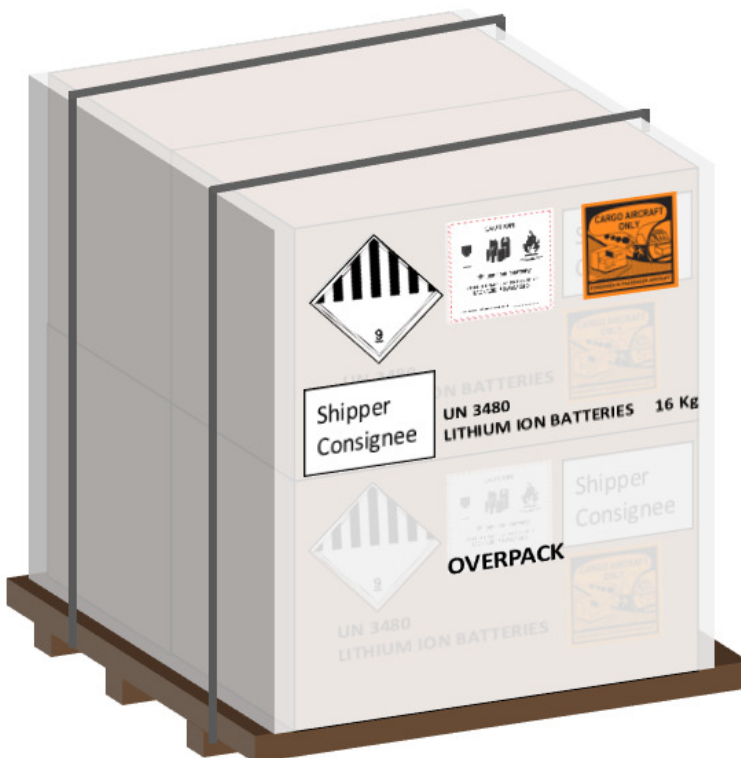
Max. content: 2 batteries per packaging

6.3.2. Example: Packaging containing batteries ≤ 100 Wh, PI 965, SEC IB



Max. content: 10 Kg net per packaging

6.3.3. Example: Packaging containing batteries ≤ 100 Wh, PI 965, SEC IB, overpack used



Max. content: none per overpack (from 01. Jan. 2016 min. size of "OVERPACK" 12mm)

Shipping Guidelines for Lithium Ion Batteries

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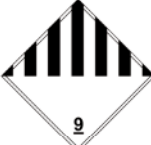
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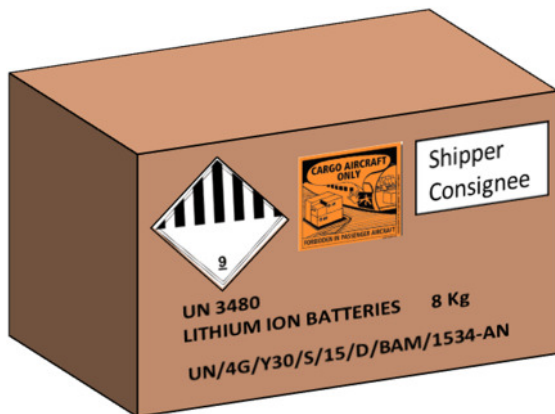
6.4. Shipment of Lithium Ion Batteries > 100 Wh by Air Freight (IATA)

A passed transportation test according section 38.3 of the UN Manual of Tests and Criteria is required!

For IATA **PI965 SEC IA** only: Lithium ion cells and batteries must be offered for transport at a state of charge (SoC) not exceeding 30% of their rated design capacity!

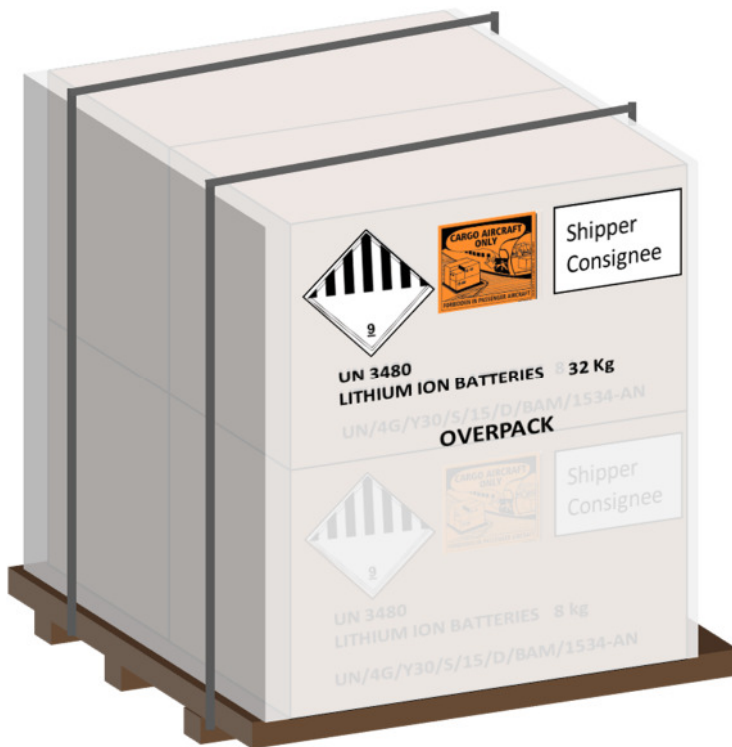
Airfreight (IATA)			
	For lithium ion cell the Watt-hour rating is more than 20 Wh. For lithium ion battery the Watt-hour rating is more than 100 Wh.		
Packing Instructions	IATA PI965 Section IA	IATA PI966 Section I	IATA PI967 Section I
Transportation Mode	Batteries (without equipment)	Batteries packed with equipment	Batteries contained in equipment
			
Max. Quantity	none	number required for equipment plus 2 spare	none
Weight Limit PAX	prohibited	5 kg net battery weight per packaging	
Weight Limit CAO	35 kg net battery weight per packaging		
Packaging	Batteries must be placed in inner packaging that completely encloses the battery, batteries must be protected to prevent short circuits UN approved packaging (Packing Group II: e.g. UN 4G/Y30/...)	Batteries must be placed in inner packaging that completely enclose the battery, batteries must be protected so as to prevent short circuits UN approved packaging (Packing Group II: e.g. UN 4G/Y30/...)	Equipment containing batteries must be secured and packed to prevent unintended operation during transport. Batteries must be protected to prevent short circuits due to contact to further conductible materials within the same packaging. Strong outer packaging (e.g. cardboard box) UN approved packaging not required
Marking	UN 3480, Lithium ion batteries Net weight (NET QTY) Shipper-/Consignee's address  	UN 3481, Lithium ion batteries packed with equipment Net weight (NET QTY) Shipper-/Consignee's address 	UN 3481, Lithium ion batteries contained in equipment Net weight (NET QTY) Shipper-/Consignee's address 
Transport Document	Shipper's Declaration for Dangerous Goods: UN 3480 Lithium ion batteries, 9 // 965	Shipper's Declaration for Dangerous Goods: UN 3481 Lithium ion batteries packed with equipment, 9 // 966	Shipper's Declaration for Dangerous Goods: UN 3481 Lithium ion batteries contained in equipment, 9 // 967
Information on Air Waybill	Dangerous Goods as per attached DGD - Cargo Aircraft only		
Miscellaneous	Official IATA-Training by authorized trainer required. If not available, please contact IATA authorized expert		

6.4.1. Example: Packaging containing batteries > 100 Wh, PI 965, SEC IA



Max. content: 35 Kg net per packaging (CAO)

6.4.2. Example: Packaging containing batteries > 100 Wh, PI 965, SEC IA, overpack used



Weight limit CAO (cargo aircraft only): 35 kg net battery weight per packaging, none for overpack

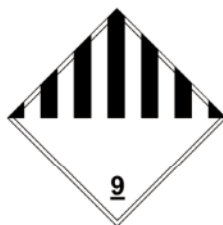
6.5. Shipment of Lithium Ion Battery Prototypes

Transportation Mode	Prototypes Truck/Rail/Sea Freight	Prototypes Airfreight
	Prototypes: Batteries not tested according UN Test 38.3 Only for transport of • small production series of max. 100 batteries (IATA: p.a.) • prototypes for testing reasons only	
Packing Instructions	ADR/RID/IMDG SP310	IATA A88: Approval from Aviation Authority of State of origin and State of operator (IATA DGR Chapter 1.2.5) required (Note: to/across/via USA additionally approval from US Authority (DOT) required)
Max. Quantity	n/a	as defined in approval
Weight Limit	n/a	as defined in approval
Packaging	UN approved packaging: (Packing Group I) • Each battery shall be packed e.g. in a plastic bag • Pad out box with Vermiculite • ADR/RID/IMDG: see SP230 • Must be secured against movement within the outer packaging	UN approved packaging: (Packing Group I) (Note: German Luftfahrtbundesamt LBA accept metal packaging and cargo aircraft shipments only) • Each battery has to be packed in a plastic bag • Pad out box with Vermiculite
Marking	ADR/RID: UN 3480 IMDG: UN 3480 LITHIUM ION BATTERIES (100 x 100 mm) 	UN 3480 Lithium ion batteries Net weight (NET QTY) Shipper-/Consignee's address 
Transport Document	Shipper & consignee's address: UN 3480 LITHIUM ION BATTERIES, 9, (E) Number of packages and packaging type (e.g. 1 Aluminum box) Battery weight (e.g. xx kg) Transport category 2 Special Provision SP310 IMDG: IMO-DANGEROUS GOODS DECLARATION (SOLAS 74, KAP. VII, REG 5, MARPOL 73/79, ANNEX III REG. 4 OF IMDG-CODE	Shipper's Declaration for Hazardous Goods: UN 3480 Lithium ion batteries, 9, PI 965 // A88 Copy of A88 Approval UN 3481, Lithium ion batteries packed with equipment, 9, E
Miscellaneous	Work instruction of involved staff	Offical IATA-Training by authorized trainer required; if not available, please contact IATA authorized expert/forwarder.

6.5.1. Example: Packaging containing Lithium Ion Battery Prototypes



6.6. Shipment of damaged or defective Lithium Ion Batteries

Transportation Mode	Damaged or Defective Batteries	
	Truck/Rail/Sea (not comply to UN Test 38.3 anymore)	Air Transport of Damaged or Defective Batteries
Packing Instructions	SP376 P908	Batteries, that have been identified as defective for safety reasons by the manufacturer, or that have been damaged, that have the potential of producing a dangerous evolution of heat, fire or short circuit, are forbidden for transport (e.g. those being returned to the manufacturer for safety reasons) (IATA A154).
Criteria for "Damaged or Defective"	"Non-critical" (no possible danger during transport) Batteries such that they do not conform to the tested type according to the applicable provision of the UN Manual of Tests and Criteria, 38.3 This includes • Batteries identified as being defective for safety reasons • Batteries that have leaked or vented • Batteries that cannot be diagnosed prior to carriage, or • Batteries that have sustained physical or mechanical damage If there is no danger in transportation possible, then requirements for transport as stated below: "Critical" (possible danger during transport) • Batteries that tend to break down quickly • Batteries react dangerously, producing smoke and flames • Batteries produce the dangerous heat • Batteries releasing dangerous toxic, corrosive or flammable gases (Note: In order to assess the type of battery, its previous use and misuse shall be taken into account) Transport only with approval from Competent Authority in Germany: Federal Institute for Materials Research and Testing (BAM) (Detailed requirements as stated in approval)	n/a
Max. Quantity	n/a	
Weight Limit	n/a	
Packaging	• Each battery must be packed separately in close inner packaging (preventing leakage and short-circuit) • UN approved packaging required for all battery types (Packing Group II), e.g. fibreboard box • Must be secured against movement within the outer packaging • If packed hermetically, air venting contrivance required • Must be packed with non-combustible and non-conductive insulating material, material class A1 or A2 („non-combustible“, e.g. rockwool, glass wool, foamglas, Vermiculite) • Absorbing material to absorb leaking electrolyte	n/a
Marking	UN 3480 DAMAGED / DEFECTIVE LITHIUM-ION BATTERIES 	n/a
Transport Document	Shipper & consignee's address UN 3480 LITHIUM ION BATTERIES, 9, (E) Number of packages and packaging type (e.g. 1 Aluminium box) Battery weight (e.g. xx kg) Transport category 2	n/a
Miscellaneous	Work instruction of involved staff	n/a

6.7. Shipment of Lithium Ion Batteries for Disposal or Recycling

Transportation Mode	Batteries for Disposal & Recycling	
	Truck/Rail/Sea (not comply to UN Test 38.3 anymore) Waste batteries and batteries being shipped for recycling or disposal are prohibited from air transport unless approved by the appropriate national authority of the State of Origin and the State of the Operator.	
	< 100 Wh (per battery)	> 100 Wh (per battery)
Packing Instructions	SP377 P909	
Max. Quantity	none	
Weight Limit	30 kg per packaging	none
Packaging	For batteries >1 00 Wh UN-approved packaging required (Packing Group II) < 100 Wh for batteries contained in equipment, UN-approved packaging is not required (strong outer packaging or collection boxes) Batteries shall be packed to prevent short circuits and dangerous evolution of heat This can be achieved by: • Individual protection of the battery terminal • Inner packaging to prevent contact between batteries • Batteries with recessed terminals designed to protect against short-circuits or • The use of non-conductive and non-combustible cushioning material to fill empty space between the batteries in the packaging Batteries shall be secured within the outer packaging to prevent excessive movement during carriage (e.g. by using a non-conductive and noncombustible cushioning material or through the use of a tightly closed plastic bag)	
Marking	UN 3480 LITHIUM BATTERIES FOR DISPOSAL or LITHIUM BATTERIES FOR RECYCLING 	
Transport Document	Shipper & consignee's address UN 3480, WASTE LITHIUM ION BATTERIES, 9, (E) Number of packages and packaging type (e.g. 1 Fibreboard box (4G)) Battery weight (e.g. xx kg) Transport Category 2	
Miscellaneous	Work Instruction of Involved staff	

7. Useful Websites

The following websites provide various sources of useful information:

<http://www.unece.org>

<http://www.iata.org>

<http://www.icao.int>

<http://www.imo.org>

<http://www.gpo.gov/>

<http://phmsa.dot.gov/hazmat>

<https://www.lithium-batterie-service.de/en/>

The Netherlands



Elektrostraat 17
NL-7483 PG Haaksbergen

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F: +31 (0)53 573 33 30
E: nl@texim-europe.com

Belgium



Zuiderlaan 14 bus 10
B-1731 Zellik

T: +32 (0)2 462 01 00
F: +32 (0)2 462 01 25
E: belgium@texim-europe.com

UK & Ireland



St. Mary's House, Church Lane
Carlton Le Moorland
Lincoln LN5 9HS

T: +44 (0)1522 789 555
F: +44 (0)845 299 22 26
E: uk@texim-europe.com

Germany North



Bahnhofstrasse 92
D-25451 Quickborn

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E: germany@texim-europe.com

Germany South



Martin-Kollar-Strasse 9
D-81829 München

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F: +49 (0)89 436 086-19
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Austria



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A-5020 Salzburg

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Nordic region



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