

# Lithium ion battery packaging





## Overview

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Each battery must be individually packaged in non-metallic packaging made of cushioning material that is non-combustible, non-conductive and absorbent. The individual packaging must then be enclosed in outer packaging. Outer packaging can be made from metal, wood, or plastic. What type of packaging do you need for lithium ion batteries?

Depending on the Watt-hour rating for lithium ion cells or batteries or the lithium metal content for lithium metal cells or batteries, the packaging required may need to be UN specification or may be simply strong, rigid packaging that is strong enough to withstand the shocks, mechanical handling, and loading encountered in transport.

How are lithium ion batteries packaged?

Each battery or cell must be entirely enclosed to prevent contact with other equipment or any conductive materials. The inner packaging containing lithium ion batteries can be placed in containers crafted from various materials, including metal, wood, fiberboard, or solid plastic jerrycans.

What packaging technologies are used in lithium-ion batteries?

With the widespread deployment of Lithium-ion batteries to power numerous applications over the course of the last decade, three primary packaging technologies have evolved as the most prevalent in the Lithium-ion battery industry: Cylindrical, Prismatic, and Pouch-based.

Can lithium batteries be packed in the same outer packaging?

Under the provisions of PI 965 Section IA and IB other lithium battery-powered equipment may be packed in the same outer packaging provided that all applicable parts of the relevant packing instructions are followed, which includes the net weight of lithium batteries contained in the package.

Should lithium ion batteries be packaged?



A guiding principle is that lithium ion batteries must be packaged to eliminate movement or contact with other materials, and each package must display a hazard communication label. Battery Type.

How should lithium ion batteries be shipped?

According to the DOT, lithium ion batteries must be shipped in a manner that protects against: As a standard guideline, metallic inner packaging for lithium ion batteries is prohibited. Each battery or cell must be entirely enclosed to prevent contact with other equipment or any conductive materials.



## Lithium ion battery packaging

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### Packing Instruction 965

Chapter 11 4-11-25 2017-2018 EDITION Packing Instruction 965 Cargo aircraft only for UN 3480 1. Introduction This entry applies to lithium ion or lithium polymer batteries. This packing instruction is structured as follows: -- Section IA applies to lithium ion cells

### eCFR :: 49 CFR 173.185 -

After December 31, 2015, each lithium ion battery subject to this provision must be marked with the Watt-hour Packaging. Lithium cells and batteries must be packed in inner packagings that completely enclose the cell or battery then placed in a strong rigid



### [Transporting Lithium Batteries , PHMSA](#)

Lithium cells and batteries offered for transportation must have passed the design tests found in the United Nations (UN) Manual of Tests and Criteria, Section 38.3. Effective January 21, 2022, lithium cell and battery manufacturers must make test summary

### Transport of Lithium Metal and Lithium Ion Batteries

IATA Lithium Battery Guidance Document - 2024 OSS/Cargo Page 4 01/01/2024 to Table 9.3.A. In addition, packages containing UN 3090, lithium metal batteries prepared in accordance with Section IA or Section IB of PI968 or UN 3480,



lithium ion batteries



### IATA

Lithium batteries fall into two broad classifications; lithium metal batteries and lithium-ion batteries. Lithium metal batteries are generally non-rechargeable and contain metallic lithium. Lithium-ion batteries contain lithium which is only present in an ionic form in the electrolyte and are rechargeable.



### Transport of Lithium Metal and Lithium Ion Batteries

Lithium ion batteries packed by themselves (Packing Instruction 965) (not contained in or packed with equipment): (a) must be shipped at a state of charge (SoC) not exceeding 30% of their ...



### Ultimate Guide to Lithium Battery Packaging Solutions

In conclusion, the future of lithium ion batteries hinges on the development of advanced packaging techniques that prioritize safety and performance. It is essential for manufacturers to prioritize this aspect of battery production in order to meet the growing needs of consumers and industries relying on this technology.





### Shipping batteries: Process, Regulations and Best ...

Lithium batteries require both inner and outer packaging, along with sufficient cushioning material. Packages must be sealed securely and be able to contain leaks in the event of electrolyte spills. Any packaging damages, ...



### Support Customized Product



### Packaging Materials for Li-Ion Batteries

Dynamic cell surface temperature in different packaging materials ! 6. Chain reaction of bulk Li-ion batteries in selected packaging materials ! To be even closer to industrial practical

### Lithium Battery Packaging

Lithium battery packaging for shipping lithium-ion & lithium metal batteries around the world via road, air or sea. UN compliant lithium battery packaging. Products Videos About Useful Information FAQs Contact UK UK USA UK UK USA Call +44 (0)151 653 1500



### Your 2023 Guide to Lithium Battery Labels

For lithium ion batteries, refer to Packing Instructions 965. For lithium metal batteries, refer to Packing Instructions 968. After locating the correct PI, you'll need to figure out which section applies to your shipment. Different sections apply for different battery



### How to pack lithium ion batteries in accordance with UN regulations

When shipping lithium ion batteries, there are some legal regulations you have to comply with to maintain safety. The United Nations describes all of them extensively in the 'Recommendation on the transport of dangerous goods - Model Regulations', which is updated and revised regularly.



#### [Lithium Battery Shipping Overview](#)

Identify the presence of lithium batteries inside of a package. When shipping lithium batteries, it is not always clear which mode of transport will be used. Shipments may end up on an aircraft ...



#### [Lithium Battery Shipping Overview](#)

o Lithium-ion batteries "packed with" or "contained in" equipment: UN3481  
o Lithium metal batteries: UN3090 batteries and/or any other conductive contents or packaging.  
o The batteries must be placed in rigid outer packaging. If the shipper chooses to use



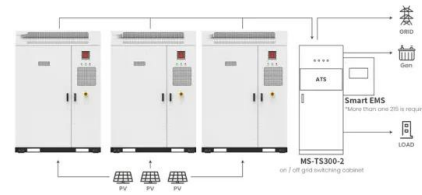
### The Complete Guide to Lithium Ion Battery Packaging

Lithium ion batteries, essential for a multitude of devices and applications, are subject to stringent packaging regulations set by the U.S. Department of Transportation (DOT). These regulations, classified under the ...



2022 LITHIUM BATTERY SHIPPING GUIDE

frame to fit into the packaging. Reference: 49 CFR 172.102, SP 134. The information provided in this guide applies to vehicles powered only by a lithium ion or lithium metal battery. If the vehicle is powered by other battery types or fuels, refer



Application scenarios of energy storage battery products



**Reusable packaging solutions for lithium-ion EV batteries**

Sep 25, 2023 - As the demand for electric vehicles powered by lithium-ion batteries continues to grow, it is becoming increasingly crucial that packaging engineers choose specialized packaging solutions for transporting and storing Li-ion batteries.

Shipping lithium batteries by air

Officially, yes: Lithium-ion batteries are governed under the United Nations regulations UN3480 and UN3481 as Class 9 "miscellaneous dangerous goods." Two dangers stand out: First, improperly packaged lithium ...



Lithium Batteries Guidance

Lithium ion batteries/cells packed according to this section are not accepted in TDI Express when transported Return to parent slide UNCLASSIFIED (PUBLIC) UN3480, Lithium Ion Batteries / Cells - P1965 Section IB. Packaging: Each battery /cell must be



### Lithium Battery Dangerous Goods Regulations [Lithium Battery ...

Lithium-Ion Batteries UN3480 Restrictions  
Lithium-ion Cells and Batteries (UN3480) must be shipped at a state of charge (ICA), ran by SAE known as SAE G-27 Lithium battery packaging performance. A committee with the responsibility to develop



### FAQs: Shipping Lithium Batteries Safely & Legally , GWP Group

Battery packaging for Lithium Ion is tightly regulated by various legislation, including UN3480, UN3481 and IATA specific rules What is UN3480? UN 3480 comprises the United Nations regulations covering Lithium ion batteries (shipped by themselves) What is

### Battery Packaging - UN Certified Packaging - Lithium Battery, ...

Battery shipping regulations are constantly changing! Find a variety of UN Certified Battery Packaging - Hazmat Boxes - at Labelmaster. We have top quality lithium battery shippers and battery shipping kits. Many items ship next day!



 LFP 12V 100Ah

### How to Ship Wet, Dry, and Lithium Batteries , FedEx

Lithium ion cells and batteries meeting the requirements of Section II must meet the general requirements of the packaging instruction. For lithium ion or polymer cells, the watt-hour rating is not more than 20Wh and 100wh per battery.



## Home

Thermo Shield(TM) is the world's only paper-based packaging material designed to suppress and control lithium battery "thermal runaway" by actively and automatically cooling the internal environment of a corrugated shipping package while limiting oxygen supply. In order to meet the growing need for battery shipment safety, PACT (a US-based packaging and crating company) ...



### Transport of Lithium Batteries in Accordance with

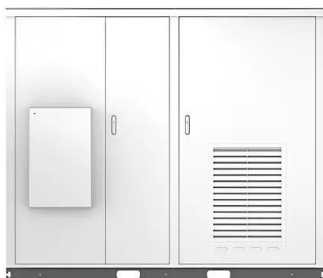
For packages of single MP3 players, no lithium battery label would be required since you can place up to 4 of these single-cell batteries in a box without labelling the outer box. In the case ...

### [How to Pack & Ship Lithium Ion Batteries](#)

To safely and properly ship lithium ion batteries, you will need to focus on 3 main factors: documentation, packaging, and labels. Shipping Criteria Lithium batteries pose a dangerous risk when it comes to transporting them ...



Solar



### [LITHIUM BATTERY GUIDE FOR SHIPPERS](#)

and packaging configurations in mitigating the associated risks. The FAA Technical Center o UN3481, Lithium ion batteries contained in equipment including lithium ion polymer batteries o Vehicles--Package or shipment contains a vehicle powered by o o o



## The Handbook of Lithium-Ion Battery Pack Design

The Handbook of Lithium-Ion Battery Pack Design: Chemistry, Components, Types and Terminology offers to the reader a clear and concise explanation of how Li-ion batteries are ...

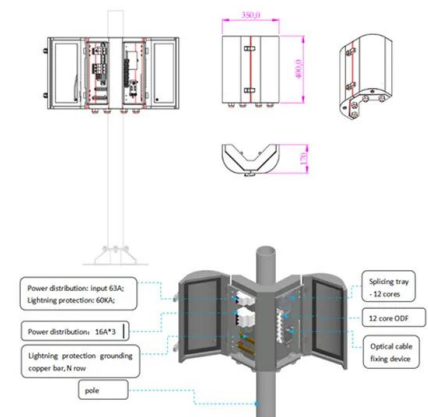


### [Battery Packaging Solutions](#)

Lithium-Ion batteries are the most high-value component of an EV. So damage or loss of quality during transport carries huge costs and risks to your reputation. Working with CHEP minimises your cost and risk through our class-leading UN certified standard reusable containers and customized inserts, supply chain visibility and optimization expertise.

### [Lithium Batteries Shipping](#)

Ensure safe lithium batteries transportation with DG Packaging's expert solutions. Trust us for compliant packaging and labeling. The 2016 restrictions apply only to standalone lithium-ion batteries (UN3480) & passenger aircraft. Lithium metal batteries (UN3090) are



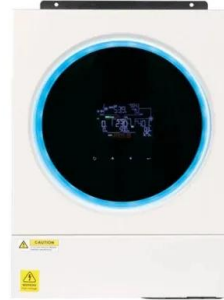
### Shipping batteries: Process, Regulations and Best Practices

The outer box must have the UN number, proper shipping name (e.g. UN 3480, Lithium-ion batteries), and hazard labels. Use laminated labels to prevent damage from condensation. Avoid placing battery shipping labels on removable packaging.



## **Beginners guide to UN3480, UN3481 and IATA regulations**

Applicable regulations; UN-No: 3480 (UN3480) or UN3481 Lithium-Ion Batteries and Lithium-Ion batteries contained in equipment or packed with equipment Any Lithium-Ion batteries to be shipped are of the type proven to meet the requirements of each test set out in the UN Manual of Tests and Criteria, PartIII, sub-section 38.3



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