



Shipping & storing lithium-ion batteries

Guidelines for FIDI Affiliates

September 2026



Disclaimer

This report is intended as guidelines and for informational purposes only. While every effort has been made to ensure accuracy, regulatory requirements and industry practices are subject to change. Readers should consult qualified advisors or official sources before making business or compliance decisions.

This report was prepared with the assistance of AI tools to support research and drafting.

All rights to reproduce, distribute, or modify this report are reserved by FIDI Global Alliance.

Published on 21 September 2026

Executive Summary

Lithium-ion (Li-ion) batteries are now standard in almost every household goods shipment. Significant changes to Li-ion battery transport requirements took effect in 2026 across air and sea transport, alongside national and regional requirements for road transport, and further changes follow on 1 January 2027 under the 68th Edition of the IATA Dangerous Goods Regulations (DGR). The consequences of getting it wrong can be dramatic: a shipment being rejected, cargo stripped and returned, or a fire breaking out.

This guide is aimed mainly at surveyors and operational teams of international moving companies, and explains the context, what the rules and regulations mean in practical terms, and what to do to be compliant and to minimise risks.

Here is a summary of the steps to follow when packing and shipping Li-ion batteries as part of a household goods shipment.

1. Ask about batteries at survey

Ask about any items potentially containing Li-ion batteries. Record the make, model and serial number for each. Check that the watt-hour (Wh) rating is visibly marked: if not, do not pack the item. Decline any battery that is damaged or has been modified or reconditioned.

2. Document the items and classify the risk

Classify each item according to the “risk band” (Band A, B, C); each risk band carries a different level of risk and restrictions.

3. Prepare the paperwork before booking

Incorrect paperwork is the most common reason shipments are rejected or held. Confirm the availability of all necessary paperwork and documents before packing. For shipments moving from 1 January 2027, check the IATA DGR 68th Edition before booking: marking, packing and documentation requirements will change.

4. Verify the carrier policy & communicate with the client

Check the booking carrier's and the actual vessel or aircraft operator's policy. Tell the customer, in writing, about any restrictions, surcharges, or liability before the move.

5. Pack and load with care

For air freight, batteries must be at or below 30% state of charge. Never remove a battery to ship it separately by air; this reclassifies it as standalone, with stricter rules. Pack no more than five Li-ion items together, avoid stacking, and check packaging survives a 1.2-metre drop. Keep batteries away from reactive goods.

6. Store batteries actively, not passively

For Band B and C items in long-term storage: never charge in storage, keep original packaging, avoid stacking, and isolate Band C items where possible. Check that fire safety is adequate and up to date. Report any damage to the booker immediately.

7. Keep your team trained and current

Rules changed substantially in 2026 and change again on 1 January 2027 with the DGR 68th Edition. Anyone whose training predates these changes should receive an update before handling affected shipments.

Table of Contents

Executive Summary.....	2
1. Introduction	4
2. How and why Li-ion batteries fail	4
2.1 Lithium battery types.....	4
2.2 Technology and normal use.....	4
2.3 Thermal runaway.....	5
2.4 Causes of battery failure	5
3. Regulatory framework	6
3.1 Mode of transportation.....	6
3.2 Key 2025–2026 regulatory changes by mode	6
3.3 UN classification table.....	6
3.4 IATA Dangerous Goods Regulations and air freight.....	8
3.5 “Cargo Aircraft Only” (CAO) and passenger aircraft restrictions	9
3.6 Lithium batteries carried by passengers – baggage rules.....	10
4. Documentation, the main failure point	10
4.1 Required documentation	11
4.2 Customer communication as a compliance step	12
5. Carrier policies and compliance	13
5.1 Carrier inconsistency	13
5.2 Verification and risk mitigation	14
6. Storage risk management	15
6.1 The Band A/B/C risk framework	15
6.2 Practical storage guidance.....	15
7. Industry signals and outlook.....	16
8. Best practices for FIDI Affiliates	16
9. Conclusions	18
Annex A – Operational Checklists.....	19
Annex B – Sources and Further Reading	21
Annex C – Abbreviations.....	22

1. Introduction

Lithium-ion (Li-ion) batteries are now present in almost every international household goods shipment. Smartphones, laptops, e-bikes, power tools, drones, gaming consoles and home energy storage units are standard items in a transferee's home – and every one of them carries a Li-ion battery subject to international transport regulations, which were substantially tightened in 2026 .

This report brings together the most current guidance from international organisations and experts like [IATA](#), [IMO](#), [PHMSA](#), [TT Club](#), [CINS](#), and other authoritative sources to give FIDI Affiliates a single, practical reference. It also maps the relevant recommendations from the current [FIDI Professional Cooperation Guidelines](#) (May 2024 edition). Its purpose is to help FIDI Affiliates understand and comply with regulations and best practices when shipping and storing Li-ion batteries as part of an international household goods move.

2. How and why Li-ion batteries fail

2.1 Lithium battery types

Lithium batteries come in two distinct families: **lithium-metal** and **lithium-ion**. The distinction is important because the regulations that apply (including size limits, quantity restrictions, and documentation requirements) differ between the two.

Most batteries in household goods consignments are lithium-ion: the rechargeable technology used in phones, laptops, e-bikes, and power tools. Lithium-metal batteries are the non-rechargeable type found in some hearing aids, calculators, watches, and specialist equipment.

Both battery families are regulated by energy density: how much energy the battery holds relative to its size and weight. For lithium-ion batteries, this is **expressed in watt-hours (Wh)** – the key figure that determines which regulations apply and whether a shipment qualifies for a simplified exemption or requires full dangerous goods treatment.

2.2 Technology and normal use

Li-ion batteries power the full range of modern consumer electronics: smartphones, laptops, tablets, e-bikes, e-scooters, power tools, drones, cameras, and increasingly, home energy storage systems. All of these are common in household goods consignments.

Most batteries from original equipment manufacturers (OEM) are safe in normal use. The risk concentrates in reconditioned or cheap replacement batteries sourced outside the original manufacturer's supply chain. These products often bypass the safety testing that OEM batteries must pass.

2.3 Thermal runaway

The hazard that makes Li-ion batteries particularly dangerous as part of a shipment is “thermal runaway”. Inside each battery cell, a thin separator keeps positive and negative electrodes apart. If that separator fails (through physical damage, overheating, or manufacturing defect), the electrodes short-circuit. This triggers a self-sustaining chain of chemical reactions that releases heat very fast; **temperature can rise from 100°C to 1,000°C in under one second. The fire burns hotter than a conventional fire, can re-ignite after appearing extinguished, and releases toxic gases** including hydrogen fluoride (HF), which is hazardous even in small concentrations.¹

A Li-ion battery does not need to be the source of a fire to make things worse. Even an intact battery in a packed container will dramatically increase the intensity and duration of any fire that starts nearby.

2.4 Causes of battery failure

Understanding what causes batteries to fail is useful for surveyors and packing crews: the warning signs are often visible at survey and at the point of packing, if you know what to look for.

Four categories of failures or misuse account for most transport and storage incidents:

- 1. Mechanical damage:** physical damage, i.e. a battery that has been dropped, crushed, or stored loose without terminal protection. This is the most common cause of battery failure in storage.
- 2. Electrical misuse:** overcharging or over-discharging, which puts the cells under stress and degrades the separator over time.
- 3. Thermal exposure:** sustained exposure to high temperatures; this can be the case for containers routed through very hot climates, or for goods stored in unventilated warehouses.
- 4. Modified or non-standard batteries:** third-party e-bike conversion kits, non-OEM replacement batteries, and reconditioned power banks are disproportionately involved in fire incidents. The London Fire Brigade noted in January 2026 that conversion kits and chargers purchased online are among the leading causes of e-bike fires in the UK. Any such item identified at survey should be declined.

Additional risk factors include **manufacturing defects** (more common in non-OEM batteries), **battery management software faults**, and **liquids or condensation contacting the battery** – a risk in containers moving through humid or tropical environments.

A correctly manufactured, undamaged OEM battery that has passed UN 38.3 certification is, under normal transport conditions, statistically unlikely to experience thermal runaway. For international moving companies, **identifying and declining non-compliant items at the moment of survey is the single most effective intervention that can avoid risk.**

¹ CROSS Safety UK, ‘Fire safety concerns with lithium-ion batteries’, February 2025.https://www.cross-safety.org/sites/default/files/2025-02/cross_topic_paper_fire_safety_concerns_with_lithium-ion_batteries.pdf

3. Regulatory framework

3.1 Mode of transportation

The rules for Li-ion batteries depend heavily on how a shipment travels. Air freight is the most restrictive, followed by sea freight, with road transport generally the most permissive. In practice, most international HHG shipments involve more than one transportation mode: a container can be first moved by road to port, then by sea, with an air freight component for urgent items. Each leg is governed by its own regulations and processes.

3.2 Key 2025–2026 regulatory changes by mode

Mode	Governing regulation	Key 2025–2026 change
Sea freight	IMDG Code Amendment 42-24	Mandatory from 1 Jan 2026. Codes UN 3556/3557/3558 replace UN 3536 for battery vehicles. UN 3171 = non-lithium vehicles only. Wh marking mandatory on all Li-ion batteries.
Air freight	IATA DGR 67th Edition (2026)	30% charge mandatory for UN 3481 packed-with-equipment (>2.7 Wh) from 1 Jan 2026. Power banks = UN 3480 standalone. No exceptions for small standalone batteries. ²

3.3 UN classification table

The UN classification system assigns a **four-digit number to each category of dangerous goods**. For lithium-ion batteries, the UN number determines which regulations, packaging instructions, documentation, and labelling requirements apply. **Using the wrong UN number constitutes a misdeclaration** regardless of whether the physical shipment is correctly packed. The table below sets out the current UN numbers applicable to Li-ion batteries in personal household goods shipments.

² Lion Technology, '2026 Lithium Battery State of Charge Cheat Sheet', December 2025.<https://www.lion.com/lion-news/december-2025/new-lithium-battery-state-of-charge-limit-in-effect-jan-1>

Proper Shipping Name	Class	UN Number
Lithium-ion batteries (standalone / power banks) ³	9	UN 3480
Lithium-ion batteries contained in / packed with equipment	9	UN 3481
Lithium metal batteries (standalone)	9	UN 3090
Lithium metal batteries contained in / packed with equipment	9	UN 3091
Vehicle, lithium-ion battery powered [replaces UN 3536 for e-bikes, e-scooters, EVs – from 1 Jan 2026]	9	UN 3556*
Vehicle, lithium metal battery powered [from 1 Jan 2026]	9	UN 3557*
Vehicle, sodium-ion battery powered [from 1 Jan 2026]	9	UN 3558*
Sodium-ion batteries (standalone)	9	UN 3551*
Sodium-ion batteries contained in / packed with equipment	9	UN 3552*
Li-ion batteries installed in static cargo transport unit (only applicable to Battery Energy Storage Systems (BESS), not for vehicles)	9	UN 3536 (restricted)

*codes are new and have to be used as of 1 January 2026

Two additional rules apply specifically to the context of household goods shipments:

- 1. Special Provision 188 (SP188):** smaller batteries (<100 Wh) may qualify for an exemption from full “Dangerous Goods” (DG) treatment, simplifying packaging and documentation requirements. However, **this exemption does not remove the Wh marking obligation:** all Li-ion batteries must have their Wh rating visibly marked on the outer casing regardless of size.⁴
- 2. Ocean DG cascade:** in sea freight, declaring **any single item in a consignment as dangerous goods triggers “DG status” for the entire shipment.** This attracts IMO surcharges, additional handling fees, and – critically – means that most NVOCCs will not handle the consignment as LCL cargo. For small household goods moves using consolidation, this is important to take into account.

³ IATA, Lithium Battery Guidance Document, 2026 Edition (updated 1 January 2026, aligned with IATA DGR 67th Edition / ICAO TI 2025-2026).<https://www.iata.org/contentassets/05e6d8742b0047259bf3a700bc9d42b9/lithium-battery-guidance-document.pdf>

⁴ PHMSA, Lithium Battery Guide for Shippers, October 2024 (HM-215Q, effective 10 May 2024).<https://www.phmsa.dot.gov/sites/phmsa.dot.gov/files/2024-11/Lithium-Battery-Guide-2024.pdf>

3.4 IATA Dangerous Goods Regulations and air freight

Air freight imposes the most restrictive conditions of any transport mode for lithium-ion batteries. **The IATA Dangerous Goods Regulations (DGR) set out mandatory requirements that differ substantially from sea and road rules.** The 67th Edition (2026) applies until 31 December 2026; the 68th Edition takes effect on 1 January 2027 and introduces further changes.

The key points for household goods shipments are set out below. Each applies from 1 January 2026 unless otherwise stated.

1. **“DG cascade”**: the presence of dangerous goods in a household-goods consignment can trigger additional documentation, acceptance, handling, segregation and carrier requirements for the consignment. The exact consequences depend on the applicable dangerous-goods provisions and the carrier’s policy. One undeclared power bank or e-bike battery in an air freight shipment can affect the entire consignment.
2. **30% state of charge (SoC)** mandatory from 1 January 2026: the state-of-charge limit has been extended to batteries packed with equipment (UN 3481) above 2.7 Wh. This means that laptops, drones, cameras and power tools shipped in the same box as a loose battery must be **at or below 30% charge before packing**.⁵ Where the battery is installed inside the device (UN 3481 “contained in equipment”), the 30% limit is a recommendation rather than a requirement – but carriers may still insist on it, so treat 30% as the working standard for all air shipments.
3. **Power banks are considered standalone batteries**: power banks are classified as UN 3480 (standalone Li-ion batteries), not as batteries contained in equipment. **Standalone Li-ion batteries are subject to significantly more restrictive air-transport requirements** than batteries contained in or packed with equipment. They may only be transported under the applicable provisions for UN 3480, including the relevant IATA packing instruction, quantity limits, marking, labelling and aircraft restrictions.
4. **Never remove a battery for air freight**: a battery removed from its device is **reclassified as standalone** and subject to the most restrictive rules. If a device cannot travel by air with its battery, the advice to the customer should be to leave the device at origin. **“Forbidden for Transport Aboard Aircraft or Vessel” marking: some batteries are prohibited for air and sea.** In multi-modal household goods shipments, surveyors need to identify any packages bearing this marking and ensure they are routed correctly.⁶
5. **68th Edition changes from 1 January 2027**: the 68th Edition revises the restrictions and requirements for spare batteries and power banks and revises Packing Instructions 965 to 970. Marking also changes: the older lithium battery mark carrying a telephone number is not accepted after 31 December 2026, so only the current mark format may be used from 1 January 2027. FIDI Affiliates should review the 68th Edition before making or accepting air-freight bookings for 2027.

⁵ IATA, Dangerous Goods Regulations, 67th Edition, 2026. Packing Instructions 965 and 966: mandatory 30% SoC limit for standalone batteries and batteries packed with equipment above 2.7 Wh from 1 January 2026. <https://www.iata.org/en/publications/manuals/battery-shipping-regulations/>

⁶ Lion Technology, ‘4 Keys for Shippers: Lithium Batteries’. <https://www.lion.com/lion-library/blog/lithium-batteries-four-keys-for-shippers>

Summary: shipping restrictions by mode

Configuration	UN Nr	What it means	Air restrictions	All-mode restrictions
Standalone Li-ion batteries	UN3480	Battery only – no device included	Prohibited on passenger aircraft; 30% SoC cap	Class 9 labelling; DG declaration required
Li-ion batteries packed with equipment	UN3481	Battery and device in the same box; battery not installed	Quantity limits based on watt-hour rating	Class 9 labelling; DG declaration required
Li-ion batteries contained in equipment	UN3481	Battery installed and operational in the device	Quantity limits differ from “packed with” configuration	Class 9 labelling; DG declaration required
Lithium metal batteries	UN3090 /UN3091	Non-rechargeable; standalone or with equipment	Prohibited on passenger aircraft in most configurations	Stricter per-package watt-hour limits than Li-ion; DG declaration required

3.5 “Cargo Aircraft Only” (CAO) and passenger aircraft restrictions

Not all batteries can travel on all aircraft. IATA DGR 67th Edition (2026) draws a hard line between batteries that may fly on passenger aircraft and those restricted to cargo aircraft only (CAO).

- 1. Standalone Li-ion batteries** (UN 3480, PI 965 Section IA/IB) are **“cargo-aircraft-only”** and must bear the CAO label; they cannot travel on passenger aircraft without specific “State of Origin/State of Operator” approval under Special Provision A201.
- 2. Batteries packed with or contained in equipment** (UN 3481, PI 966/967) **may fly on passenger aircraft**, subject to a 5 kg net weight limit per package and valid UN 38.3 certification.

This means that **any standalone battery**, such as a removed laptop battery, a spare power tool battery, or a power bank not installed in a device, cannot go in checked baggage on a passenger flight, and it **cannot be included in a standard air freight shipment without specific State approval** (SP A201). This is one of the most frequently misunderstood rules in personal effects air freight compliance.

Mobility scooters, wheelchairs and similar equipment require particular attention.

The 2027 IATA DGR introduces additional operator requirements for lithium battery-powered mobility aids, including specific requirements for devices with batteries exceeding 300 Wh.

For household goods shipments, movers should identify mobility aids at survey and obtain the battery specifications before booking air transport. The operating airline should be consulted before the shipment is accepted.

3.6 Lithium batteries carried by passengers – baggage rules

When a transferee travels, they typically carry electronic devices and batteries as personal baggage. Moving companies who understand these rules can brief transferees accurately, reducing the risk of items being confiscated at the gate.

What passengers may and may not carry:

- **Batteries ≤100 Wh in a device:** permitted in both carry-on and checked baggage; **no operator approval needed.** When in checked baggage, the device must be completely switched off.
- **Spare batteries ≤100 Wh:** permitted in carry-on baggage only.
- **Batteries >100 Wh: from 1 January 2027, power banks exceeding 100 Wh may not be carried by passengers at all.** Spare batteries for consumer electronic devices above 100 Wh and up to 160 Wh remain permitted in carry-on baggage only, with operator approval and a maximum of two per passenger. **Batteries above 160 Wh may not be carried as baggage and must travel as cargo under the applicable IATA provisions** – noting that standalone Li-ion batteries (UN 3480) are forbidden on passenger aircraft.
- **Power banks: limited to a maximum of 2 per passenger**, each not exceeding 100 Wh. Must not be recharged from in-aircraft power supply. Should not be stored in overhead lockers. If the carry-on baggage is taken to the hold at the gate, all lithium batteries and battery-powered devices must be removed first.

Airlines are free to impose stricter conditions than the IATA baseline, so transferees should always confirm with their specific airline before travel. All batteries – whether shipped as cargo or carried as baggage – must have passed UN 38.3 testing.⁷

4. Documentation, the main failure point

Of all the ways a Li-ion battery shipment can go wrong, documentation failures are the most common. Enforcement actions at ports, shipment rejections by airlines, and cargo stripped at terminals almost always trace back to a missing or incorrect document rather than to a physical packing failure.

The most frequent mistakes include assuming that household goods exemptions apply when they do not; using outdated material safety data sheets; missing or incorrect UN numbers; and failing to verify the Wh rating before submitting a DGD.

Incomplete documentation can lead to cargo being stripped from a shipment and returned to origin, held at the terminal pending resolution, or refused by the carrier altogether – with demurrage and detention costs falling on the responsible party.

⁷ Source: IATA Guidance Document for Passengers Travelling with Lithium Batteries, 31 March 2026

4.1 Required documentation

1. **Current SDS/MSDS:** a valid and up-to-date **Safety Data Sheet (SDS) or Material Safety Data Sheet** is required for all items subject to full DG treatment. An SDS/MSDS is the **manufacturer's standardised hazard and handling data sheet** for the product, normally available free from the manufacturer's or retailer's website or on request from the supplier. Always check the revision date and obtain a current version, as sheets found online are frequently outdated.
2. **UN 38.3 Test Summary:** this is the **certification that the battery has passed all required UN safety tests** and must accompany the shipment. The document can be obtained from the battery or equipment manufacturer, importer or retailer, who must make it available on request; many publish it on their website's compliance or downloads page.
3. **Dangerous Goods Declaration (DGD):** The Declaration must use the **correct 2026 UN numbers**. Using an outdated UN number is considered a misdeclaration.
4. **Wh rating marking:** mandatory for all lithium-ion batteries since 2024. Any battery without a visible Wh rating on its outer casing should be flagged as potentially non-compliant at intake.
5. **Correct HS Code:** The Harmonised System (HS) code is the **international customs classification number for the goods**; it is normally shown on the supplier's invoice or product documentation and can otherwise be looked up in the destination country's customs tariff database or confirmed with the customs broker.
6. **Battery specification sheet: document confirming the Wh rating,** required as part of the special listing for electrical and electronic items. It is issued by the battery or equipment manufacturer and is normally found in the user manual, on the product's technical-specification page on the manufacturer's website, or on the packaging.

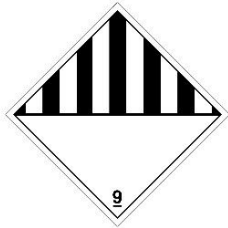
Air shipment Packing Instructions (PI) – IATA DGR 67th Edition 2026:

The PI number must appear on both the Shipper's Declaration for Dangerous Goods and the Air Waybill. The correct PI depends on the physical configuration of the battery:

- **PI 965 – UN 3480:** standalone Li-ion batteries (not in or with equipment). Section IA/IB: cargo aircraft only. Note: Section II is being phased out under DGR 67th Edition (grace period to 31 December 2026).
- **PI 966 – UN 3481:** Li-ion batteries packed with equipment (battery and device together in the package but not installed).
- **PI 967 – UN 3481:** Li-ion batteries contained in equipment (battery physically installed inside the device).

Physical markings on packaging:

Two markings must be clearly visible on the outer packaging before a Li-ion DG shipment is accepted. Missing either is grounds for rejection at the airline acceptance desk or port terminal.



Class 9 hazard label: the standard diamond-shaped DG label for miscellaneous dangerous goods, minimum 100×100 mm. Labels can be bought from specialist dangerous goods label suppliers or the IATA publications store and are often supplied by the freight forwarder or airline cargo desk.



Lithium battery handling mark: a separate rectangular mark showing the battery symbol with a flame and the relevant UN number. Border must have red diagonal hatchings. Required for PI 965 Section IB, PI 966, PI 967, and all Section I shipments. A Cargo Aircraft Only (CAO) label is additionally required for PI 965 Section IA and IB. The mark is available from the same specialist dangerous goods label suppliers, or via the freight forwarder or airline cargo desk.

Important note: if the Wh rating is not visible on the outer packaging, airlines and ground handlers may refuse the shipment.

Emergency schedule codes for sea freight DGDs:

Every Dangerous Goods Declaration (DGD) for sea freight must include Emergency Schedule (EmS) codes. For lithium-ion batteries, the correct codes are:

- **EmS F-A:** the **fire emergency schedule** – directs the ship's crew to the correct firefighting procedures for Class 9 / miscellaneous dangerous goods fires.
- **EmS S-I:** the **spillage emergency schedule** – directs the crew to the correct procedure for spillage involving Li-ion batteries (electrolyte leakage, venting).

Both codes are mandatory entries on the DGD and must reference the current IMO EmS Guide (MSC.1/Circ.1588/Rev.3, updated under IMDG Amendment 42-24). Omitting them is a documentation gap that will cause the DGD to be rejected.⁸

4.2 Customer communication as a compliance step

Properly informing the customer is strongly recommended and a practical protection for the moving company.

Before confirming a booking, **the transferee must be told in writing:**

- which **items are restricted** or prohibited,
- what the **potential surcharges** are as well as the risk of delay or rolling,
- their **personal liability** if items are undeclared,
- and to check that their **insurance specifically covers Li-ion battery incidents**.

⁸ Source: IMDG Code Amendment 42-24, IMO, mandatory 1 January 2026

A lack of proper insurance is more significant than most transferees realise. Most standard marine and storage policies have not been updated to reflect the changed Li-ion risk profile. **Customers may be unknowingly underinsured**, and they might hold the moving company responsible if they were not warned.

UK fire services attended 1,760 Li-ion battery fires in 2025, causing an estimated £1 billion in annual damage (QBE, 2026). Insurers globally have taken action, and policy exclusions and premium surcharges for Li-ion incidents are increasing. Moving companies who cannot demonstrate DG compliance may find their **own cargo policies provide less protection than they assumed**.

For the moving company, a standard cargo policy may not cover losses arising from a shipment that contained undeclared or improperly packed dangerous goods. Documented customer communication – confirming what was disclosed, when, and in writing – is your best protection.

5. Carrier policies and compliance

5.1 Carrier inconsistency

One of the most frustrating realities for moving companies trying to comply with Li-ion regulations is that **there is no single set of carrier rules to follow**. Each shipping line, airline, and vessel operator applies its own policy; and those policies can differ from the booking carrier's position, change without notice, and vary between alliance partners on the same vessel.

The moving industry's leverage here is limited. Household goods shipments represent well under 0.5% of the commodities handled by major carriers. Attempting to negotiate carrier policy is not realistic. What is realistic is knowing what you can verify and doing so systematically.

A blanket ban on Li-ion items is not the answer. Many battery-containing goods in PE consignments are small, low-risk, and entirely manageable. Refusing all such items would frustrate customers and may create its own insurance and contractual issues.

The right approach is proportionate, documented risk management: knowing which items require what treatment and acting accordingly.

It is recommended to inform the client about this risk and make sure the packages with batteries are easily reachable in the shipment in case of a control.

5.2 Verification and risk mitigation⁹

Verify at three levels before packing

- **Level 1:** Does the BOOKING carrier accept Li-ion batteries under the applicable classification?
- **Level 2:** Is the actual VESSEL OPERATOR known, and do they accept this cargo?
- **Level 3 (NEW):** Does the vessel operator accept under the correct UN number? (UN 3556, not UN 3536 from Jan 2026)

Verification must be repeated at final container allocation, not just at booking. Communicate any restrictions or surcharges to the customer at the time of booking confirmation.¹⁰

Step-by-step verification to mitigate risks:

1. **Cargo pre-checks:** before a Li-ion item is packed, confirm correct DG declaration, a valid DGD, UN 38.3 test summary, short-circuit prevention, battery condition (no leaks, damage, smoke, or discolouration), visible Wh marking, and that no modified or non-standard batteries are included. Packaging must withstand a 1.2-metre drop. Check and record the battery's State of Charge before packing.
2. **Container packing:** map the expected ambient temperatures along the full voyage route. Routes through the Gulf, South-East Asia, and West Africa expose containers to sustained heat that accelerates battery degradation and raises thermal runaway risk; consider reefer units where OEM temperature guidelines may be exceeded. Ensure CTU Code compliance, correct orientation of packages per labelling, and segregation from reactive DG items (cleaning products, compressed gas canisters) that are commonly found in household goods shipments.
3. **Stowage at sea:** All Li-ion cargo should be stowed away from heat sources – heated fuel tanks, machinery spaces, upper deck positions – and only in locations where effective firefighting and cooling can be carried out. Note that these are decisions made by the shipping line, not the shipper; but if necessary, you can ask the carrier.
4. **Incident detection and response:** the warehouse, depot, and vessel all need current fire risk assessments that specifically address Li-ion batteries. FIDI Movers are not responsible for vessel or third-party depot fire systems, but they should verify that the facilities they own or use have appropriate infrastructure in place.

Training is the one area where the responsibility is unambiguously the moving company's own: surveyors, packing crews, depot staff, operations teams, and customer-facing staff all need to understand Li-ion risks and know what to do if thermal runaway occurs.

⁹ TT Club, TT Brief on Lithium-Ion Batteries, NEW edition November 2025. <https://www.ttclub.com/news-and-resources/publications/>

¹⁰ Source: TT Club, November 2025

6. Storage risk management

Storage is not a lower-risk environment for Li-ion batteries; in some respects, it is higher risk than transport. Batteries in a warehouse sit unmonitored for extended periods, often at temperatures and in conditions that no one has assessed.

6.1 The Band A/B/C risk framework

Band	Typical items	Risk level	Storage/packing advice
Band A ≤100 Wh or ≤2g lithium	Phones, tablets, smartwatches, earbuds, cameras, small power banks	Low fire load	Acceptable if undamaged. No charging in storage. Cannot pack if Wh rating unknown. For air shipment: standalone power banks = UN 3480.
Band B >100–160 Wh or >2–8g lithium	Laptops, drones, professional cameras, larger power banks	Higher risk	Accept OEM batteries only. Decline modified/aftermarket batteries. No charging. For air shipment: 30% SoC mandatory from 1 Jan 2026.
Band C >160 Wh or >8g lithium	E-bikes, e-scooters, mobility scooters, large tool packs, home energy storage units	Very high fire load	Store in isolation. Request manufacturer certification. Decline conversion kits/modified batteries. Ship as DG – UN 3556 for e-bikes/EVs from 1 Jan 2026.

6.2 Practical storage guidance

- **Check condition before packing:** swollen, cracked, leaking, or visibly modified batteries must be declined. Non-standard batteries, particularly reconditioned e-bike conversion kits, carry a significantly higher fire risk and should not be accepted into storage under any circumstances.
- **Check state of charge (SoC):** neither IATA DGR nor the IMDG Code mandates a specific SoC for warehouse storage of PE goods. For storage, **movers should follow the battery manufacturer's guidance**, which typically recommends avoiding long-term storage at full charge or near-zero charge.
- **Maximum 5 items per package:** grouping more than five Li-ion battery items in the same box or storage location concentrates the fire load. **Keep them distributed.**
- **Band C isolation:** e-bikes, e-scooters, and large battery packs rated above 160 Wh **should be stored away from other goods** where the warehouse layout permits.
- **No charging in storage:** batteries should not be charged while in the warehouse.
- **Original packaging:** use the manufacturer's original packaging where available – it is **designed to protect the battery and provide thermal isolation.**
- **No stacking:** do not stack on top of each other; **allow air circulation.**

7. Industry signals and outlook

The regulatory and market environment around shipping Li-ion batteries is changing faster than in almost any other area of international moving. **The signals below indicate where the industry is heading** and what FIDI Affiliates should be monitoring:

- 1. Port-level enforcement is tightening.** In October 2025, the Ningbo Maritime Safety Administration became the first major port authority to require a full UN 38.3 Test Report at DG booking stage. This likely to be adopted by other major ports and should be treated as a preview of where enforcement is heading globally.
- 2. Reclassification is under active consideration** in the United States. The CVSA has proposed reclassifying Li-ion batteries from Class 9 to Division 4.3 (dangerous when wet). If adopted, movers would need HazMat placarding and driver endorsements for every move involving Li-ion items - a major operational change.¹¹
- 3. Insurance conditions are hardening.** Insurers are tightening terms where DG compliance can't be shown. FIDI Affiliates carry two risks: their own cargo cover, and the customer's policy, may not pay out for undeclared or Li-ion losses. Keep clear records of communication and raise the issue with the transferee early on.
- 4. Sodium-ion batteries are entering PE shipments.** Now classified under UN 3551/3552 under IMDG Amendment 42-24, sodium-ion batteries are beginning to appear in consumer electronics and e-bikes. Surveyors should be aware that not all rechargeable batteries are lithium-ion – the same identification and compliance principles apply.

8. Best practices for FIDI Affiliates

These ten points bring together the report's best practices for operational teams: surveyors, bookers, packing crews, and depot managers. Each addresses a stage in the move cycle where Li-ion risk can be identified, managed, or reduced.

1. Know and check before you pack

The survey is your only chance to catch Li-ion risk before it becomes a liability. Ask about every Li-ion item. If the Wh rating isn't visibly marked, don't pack it.

2. Classify before you commit — Band A, B or C

Not all batteries carry the same risk. Apply Band A/B/C at survey: under 100 Wh is lower risk and often exempt; over 100 Wh needs full documentation; standalone batteries over 160 Wh should be declined.

3. Check carrier restrictions before you book

Carrier policies on Li-ion vary and can change without notice. Before booking, verify the booking carrier's policy, the actual vessel or aircraft operator's policy, and the correct UN number.

4. Get the documentation right

A DGD is mandatory for Band B and C items. Use the correct UN number, gather all required documents, and prepare a separate packing list for each mode.

¹¹ Commercial Vehicle Safety Alliance (CVSA) letter to PHMSA proposing reclassification of Li-ion batteries to Division 4.3, April 2025. https://downloads.regulations.gov/PHMSA-2025-0041-0001/attachment_1.pdf

5. Reduce charge before storage or transport

For Band B and C items in long-term storage, follow the manufacturer's guidance on state of charge; avoid storing at full charge or near zero.

6. Inform the customer in writing, before the move

Before confirming the move, tell the customer (in writing) which items are restricted or prohibited, the consequences of non-declaration, and that their insurance may not cover a Li-ion incident.

7. Train your staff

IATA DGR 67th Edition and IMDG Amendment 42-24 changed the rules in 2026, making pre-2026 training out of date. Anyone handling Li-ion items needs a refresher. IATA requires retraining every 24 months — treat 2026 as the reset point.

8. Manage storage as actively as transport

Storage risk may be higher, since batteries sit unmonitored for longer. Warehouses need: a fire risk assessment covering Li-ion, working fire and gas detection, PPE for staff, no more than five non-removable batteries per package or location, and an intake process covering condition.

9. Keep up to date with rules and regulations

Regulations around Li-ion battery shipments have changed rapidly in the past two years. Build a process to track updates; at minimum, check IATA DGR and IMDG annually.

10. Apply the FIDI Professional Cooperation Guidelines

The FIDI PCG (May 2024) has no dedicated Li-ion chapter, but its existing guidelines apply here too: surveyors list restricted items, origin agents brief the crew, warehousing agents handle goods safely in a proper facility, and bookers confirm restrictions in writing.

9. Conclusions

Lithium-ion batteries are classified as Class 9 Dangerous Goods under international transport law and are present in practically every household goods consignment, so **managing Li-ion compliance should be considered a core operational requirement for FIDI Affiliates.**

Unfortunately, there is no single global rulebook: regulations differ by transport mode, country, carrier, and vessel operator, and the 2025–2026 cycle has produced some of the most significant regulatory changes in years. **And the pace of change is increasing:** IATA's DGR 68th Edition, effective 1 January 2027¹², introduces further changes relevant to lithium and sodium-ion batteries. These include revised restrictions and requirements for spare batteries and power banks, additional operator requirements for lithium battery-powered mobility aids, and updated provisions for sodium-ion and hybrid batteries. FIDI Affiliates should review the 68th Edition before making or accepting air-freight bookings for 2027.

FIDI Affiliates who implement robust Li-ion battery compliance procedures protect themselves on many fronts. Compliance protects supply chain continuity, safeguards the mover's own insurance position, and – most importantly – reduces the real risk of fire in transit or storage. It is not a regulatory burden. It is good practice.

¹² <https://www.iata.org/en/pressroom/2026-releases/09-07-iata-releases-2027-cargo-ground-operations-manuals/>

Annex A – Operational Checklists

Pre-move survey	
	Make a list of all Li-ion items (e-bikes, e-scooters, power banks, laptops, tablets, power tools, drones, home energy storage, gaming consoles); note make, model, serial number
	Confirm OEM vs reconditioned battery (reconditioned batteries carry higher risk); flag as foreseeable hazard
	Decline any modified or non-standard batteries (e.g. reconditioned e-bike conversion kits, rebuilt power banks)
	Check for visible damage (swelling, cracks, modifications); decline damaged batteries
	Verify short-circuit prevention (terminals are protected, battery not loose-fitting)
	Check that Wh rating is visibly marked on all Li-ion batteries; if absent, do not pack the item
	Apply Band A/B/C framework to assess fire load of each item
	Identify power banks as standalone batteries (UN 3480) for air freight
	Determine if item is for international shipping (sea or air?), storage, or both
	Inform the client about the SoC (state-of-charge) requirement
	Record Li-ion items on packing list with make, model, Wh rating and UN number – required before packing crew is briefed

Required documentation for international shipments	
	Up-to-date Safety Data Sheet (SDS) /Material Safety Data Sheet (MSDS) where applicable
	UN 38.3 Test Summary for all applicable items
	UN 38.3 Test Report (mandatory for Ningbo port; best practice for all ports)
	DGD correctly completed with accurate UN number
	Correct HS Code confirmed
	Battery specification sheet (Wh rating)
	For air freight: AWB correctly annotated ; confirm airline approval for items >100 Wh
	For air freight: confirm < 30% SoC for standalone batteries (UN 3480) AND packed-with-equipment batteries (UN 3481, >2.7 Wh)
	Power banks declared as UN 3480 (standalone)
	Multi-modal shipments: check whether 'Lithium Batteries – Forbidden for Transport Aboard Aircraft or Vessel' marking applies to any packages
	Packing Certificate completed (required even for smaller batteries covered by Special Provision 188 (SP 188))
	Separate packing lists prepared for each shipment mode (surface / air / storage)
	Packing list signed and dated by both crew leader and transferee before container is sealed

Carrier verification	
	Booking carrier's policy confirmed
	Vessel operator policy confirmed
	Check that vessel operator will accept under UN 3556 (applicable from Jan 2026)
	Customer informed in writing of restrictions, potential surcharges, demurrage/detention risk, and personal liability if items are undeclared
	Customer advised in writing to check insurance coverage for Li-ion battery incidents (for shipment and/or storage contract)

Packing and loading	
	Maximum 5 Li-ion items per package – do not stack items; allow air circulation. Packing crew must be briefed on prohibited/restricted items. Important: properly mark and flag the package
	Devices must be switched off before packing; removable batteries should never be shipped loose
	Verify packaging survives a 1.2-metre drop (good condition and structurally sound)
	Do not pack/load reactive DG together with Li-ion items: identify and separate Li-ion items from cleaning products, compressed gas canisters and other reactive DG
	Map temperature route: confirm ambient temperature through full voyage; consider reefer unit (especially for Band C items) for Gulf, SE Asia, West Africa routes
	Inspect container/vehicle conditions before loading: container must be clean, dry, watertight, free of damage, rust, or worn door seals – must be certified “fit for purpose”

Storage	
	Check items for damage and modification at intake decline modified/non-standard batteries; foreseeable risk must be identified and flagged
	Wh rating must be visibly marked on all batteries; flag any item without a marking
	Check that state of charge (SoC) is reduced to 30–60% for Band B/C items
	Store Band C items in isolation where possible
	No charging of items in storage
	Store items in original manufacturer's packaging where available
	No stacking of Li-ion items; allow for good air circulation
	Do not store more than 5 items containing non-removable Li-ion batteries together
	Notify booker of any issue, damage, or safety concern at intake or during storage
	Check that fire risk assessment for storage facility is up to date
	Check that fire and gas detection systems are fully operational
	Confirm availability of Personal Protection Equipment for staff

Annex B – Sources and Further Reading

This annex lists all sources cited in the body of this report and additional resources recommended for further reading, listed in alphabetical order by organisation.

ACS Publications – *ACS Energy Letters* – HF gas emissions from Li-ion battery thermal runaway (2025) <https://pubs.acs.org>

Britannia P&I – *Britannia P&I: IMDG Amendment 42-24 overview* (Dec 2025) <https://britanniapandi.com/2025/12/international-maritime-dangerous-goods-imdg-code-amendment-42-24/>

CINS – *CINS Guidelines – Shipping Li-ion Cells AND Batteries*, April 2026 <https://www.cinsnet.com/guidelines-for-the-shipping-of-lithium-ion-cells-and-batteries/>

Clemson University – *Li-ion battery fires: a growing public safety concern* (Jan 2026) <https://news.clemson.edu/lithium-ion-battery-fires-are-a-growing-public-safety-concern/>

CROSS Safety UK – *Fire safety concerns with Li-ion batteries* (Feb 2025) https://www.cross-safety.org/sites/default/files/2025-02/cross_topic_paper_fire_safety_concerns_with_lithium-ion_batteries.pdf

CVSA / PHMSA – *CVSA Reclassification Proposal: Li-ion to Division 4.3* (Apr 2025) https://downloads.regulations.gov/PHMSA-2025-0041-0001/attachment_1.pdf

Dedola Logistics – *2026 Lithium Battery Shipping Regulations* <https://dedola.com/blog/2026-lithium-battery-shipping-regulations-how-to-keep-tech-products-moving/>

FIDI Global Alliance – *FIDI Professional Cooperation Guidelines (PCG), Edition May 2024, Version 1.5*

IATA – *Releases 2027 Cargo and Ground Operations Manuals* <https://www.iata.org/en/pressroom/2026-releases/09-07-iata-releases-2027-cargo-ground-operations-manuals/>

IATA – *IATA DGR 67th Edition 2026* <https://www.iata.org/en/publications/manuals/battery-shipping-regulations/>

IATA – *IATA Lithium Battery Guidance Document – 2026 Edition* <https://www.iata.org/contentassets/05e6d8742b0047259bf3a700bc9d42b9/lithium-battery-guidance-document.pdf>

IATA – *IATA Lithium Batteries Fact Sheet (December 2025)* <https://www.iata.org/en/iata-repository/pressroom/fact-sheets/fact-sheet-lithium-batteries/>

IATA / ICAO – *Passengers Travelling with Lithium Batteries – Guidance Document (March 2026)* https://www.iata.org/contentassets/6fea26dd84d24b26a7a1fd5788561d6e/passengers_travelling_with_lithium_batteries.pdf

ICAO – *Technical Instructions for the Safe Transport of Dangerous Goods by Air (Doc 9284), 2025-2026 Edition* <https://www.icao.int/Dangerous-Goods/Technical-Instructions>

IMO – *IMDG Code Amendment 42-24 (mandatory from 1 Jan 2026)* [https://wwwcdn.imo.org/localresources/en/KnowledgeCentre/IndexofIMOResolutions/MSCResolutions/MSC.556\(108\).pdf](https://wwwcdn.imo.org/localresources/en/KnowledgeCentre/IndexofIMOResolutions/MSCResolutions/MSC.556(108).pdf)

Lion Technology – *Lithium Batteries – 4 Keys for Shippers* <https://www.lion.com/>

London Fire Brigade – *Record e-bike and e-scooter fires in London in 2025 (Jan 2026)* <https://www.london-fire.gov.uk/news/2026-news/january/record-number-of-e-bike-and-e-scooter-fires-across-london-in-2025-as-brigade-calls-for-regulation-to-be-introduced>

Ocean Network Express – *ONE IMDG 42-24 Implementation Advisory (Oct 2025)* <https://us.one-line.com/news/implementation-imdg-code-amendment-42-24>

PHMSA / US DOT – *PHMSA Lithium Battery Guide for Shippers (2024)* <https://www.phmsa.dot.gov/sites/phmsa.dot.gov/files/2024-10/Lithium-Battery-Guide-2024.pdf>

PHMSA / US DOT – *PHMSA Lithium Batteries official page – including November 2025 enforcement memo* <https://www.phmsa.dot.gov/lithiumbatteries>

QBE European Operations – *Li-ion battery fires – UK statistics 2025 (May 2026)*

<https://qbееurope.com/news-and-events/press-releases/uk-fire-brigades-tackling-lithium-ion-battery-fire-every-five-hours/>

Removals & Storage (BAR) – *Reason Global / R&S: Li-ion batteries issues and risks (Feb 2026)*

Available via BAR / R&S magazine – <https://www.bar.co.uk>

TT Club – *TT Brief Lithium-Ion Batteries (Nov 2025) and DG Quick Reference Guides (Jan 2026)*

<https://www.ttclub.com/news-and-resources/publications/>

United Nations (UNECE) – *UN Manual of Tests and Criteria, Sub-section 38.3 (current edition)*

<https://www.unece.org/transport/dangerous-goods/un-model-regulations-rev-24>

Additional resources for further reading

The following resources are recommended for practitioners seeking additional information:

Lithium Battery Service (commercial) – *Compliance portal for safe shipping of lithium batteries*

(ADR/IMDG/IATA DGR) <https://www.lithium-batterie-service.de/en/>

Ningbo Maritime Safety Administration – *Ningbo MSA: UN 38.3 Test Report requirement (Oct 2025)*

<https://us.one-line.com/news/new-document-submission-dg-lithium-batteries-ningbo-port>

UNECE – *Dangerous Goods* <https://www.unece.org/transport/dangerous-goods>

Annex C – Abbreviations

ADR	European Agreement Concerning the International Carriage of Dangerous Goods by Road (UNECE)
AWB	Air Waybill
BAR	British Association of Removers
BESS	Battery Energy Storage System
CFR	Code of Federal Regulations (US)
CINS	Cargo Incident Notification System
CTU	Cargo Transport Unit
CTU Code	IMO/ILO/UNECE Code of Practice for Packing of Cargo Transport Units
CVSA	Commercial Vehicle Safety Alliance (US)
DG	Dangerous Goods
DGD	Dangerous Goods Declaration
DGR	Dangerous Goods Regulations (IATA)
EV	Electric Vehicle
FAIM	FIDI Accredited International Mover
HF	Hydrogen Fluoride
HMR	Hazardous Materials Regulations (US, under 49 CFR)
HS Code	Harmonised System Code (World Customs Organization)
IATA	International Air Transport Association
ICAO	International Civil Aviation Organization
IMDG	International Maritime Dangerous Goods (Code)
IMO	International Maritime Organization
LCL	Less than Container Load
MSDS	Material Safety Data Sheet (older term; now SDS)
NVOCC	Non-Vessel Operating Common Carrier
OEM	Original Equipment Manufacturer
ONE	Ocean Network Express
PCG	FIDI Professional Cooperation Guidelines
PE	Personal Effects
PHMSA	Pipeline and Hazardous Materials Safety Administration (US Department of Transportation)
PPE	Personal Protective Equipment
PRAM Act	Product Regulation and Metrology Act 2025 (UK)
SDS	Safety Data Sheet (formerly MSDS)
SoC	State of Charge
SP	Special Provision (as used in IMDG Code and IATA DGR)
TI	Technical Instructions for the Safe Transport of Dangerous Goods by Air (ICAO)
UN	United Nations
Wh	Watt-hour (unit of energy used to rate battery capacity)

Acknowledgements

FIDI Global Alliance thanks the industry practitioners, FIDI Affiliates, and partner organisations whose operational experience and expertise informed the development of this report.

Contact

For questions about this report, or for further information please contact Marie-Pascale Frix, Business Intelligence Manager at marie-pascale.frix@fidi.org



CONTACT DETAILS

FIDI Global Alliance

Fountain Plaza, Building 501, 1st Floor, Belgicastraat 1
1930 Zaventem
Belgium
contact@fidi.org

www.fidi.org