

The webinar will commence shortly | 22 September 2026

From Cell to Shipment: Shipping Compliance for UN3480 Lithium-Ion Batteries



Co-Presenter:

Tom Somerville

Head of Supply Chain and Logistics



Co-Presenter:

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Logistics Operations Lead



Housekeeping for webinar

- To ask questions, please use the Q&A function on Teams
- We'll try to get through as many questions as we can once the presentation has ended
- If you want to contact UKBIC after the webinar has ended, you can email sales@ukbic.co.uk or info@ukbic.co.uk
- If you want to learn more about training, email training@ukbic.co.uk
- If you're a potential supplier, use suppliers@ukbic.co.uk
- A copy of the slides and a recording of the webinar will be available via UKBIC's website from **23 September 2026**



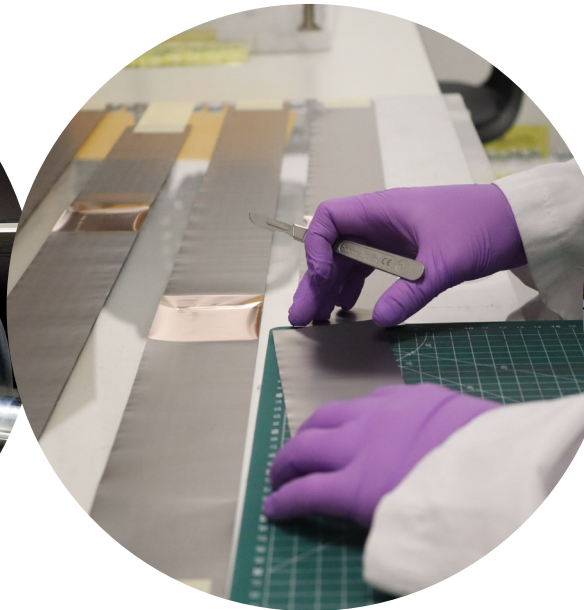
Introducing UKBIC



**Manufacturing
Scale-up**



**Product
Development**



**Testing and
Analysis**



**Workforce
Development**



From Cell to Shipment: Shipping Compliance for UN3480 Lithium-Ion Batteries

Tom Somerville, Head of Supply Chain and Logistics

Carl Wootton, Logistics Operations Lead

What do we see at UKBIC?

- We deal with innovative chemistries every day
- We need our customers to follow the rules as well to keep everyone safe



Reuters image

Why is compliance important?



**Health
and safety**



**Financial
risk**



**Legal
implications**



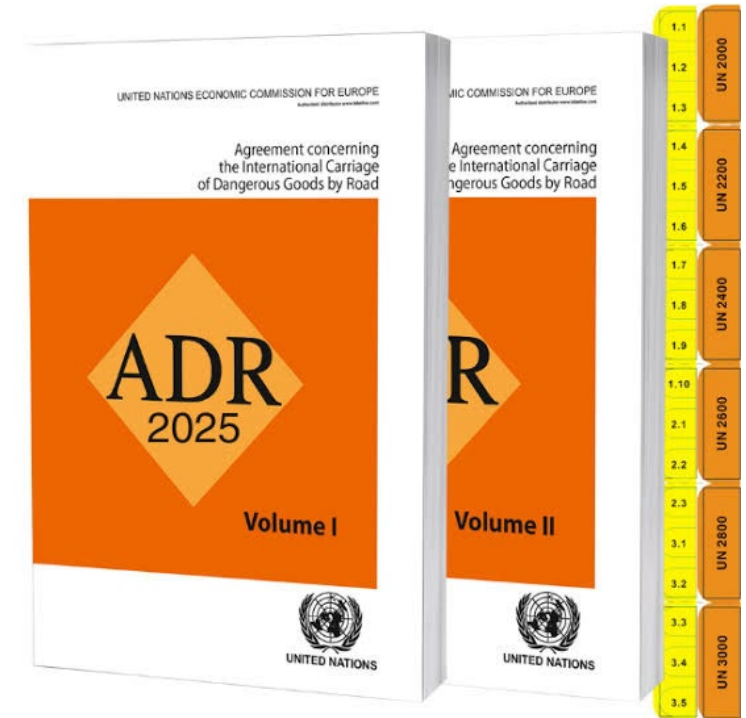
Road freight

Road freight and ADR regulations overview

DG Road Freight is governed by the:

[Agreement Concerning the International Carriage of Dangerous Goods by Road \(ADR\) \[2025\]](#)

- Part 1 General Provisions
- Part 2 Classification
- **Part 3 Identification**
- **Part 4 Packing and Tank Provisions**
- **Part 5 Consignment Procedures**
- Part 6 Construction & Testing of Packaging...
- Part 7 Conditions of Carriage, Loading, Unloading, Handling
- Part 8 Requirements for Vehicle Crews
- Part 9 Requirements for Vehicle Construction



Part 3: Identify and cross-reference

UN classification number

Limited and excepted quantities

Cross references to sections where specific requirements can be found

UN No.	Name and description	Class	Classification code	Packing group	Labels	Special provisions	Limited and excepted quantities		Packing instructions	Packaging		Portable tanks and bulk containers		ADR tank		Vehicle for tank carriage	Transport category (Tunnel restriction code)	Special provisions for carriage				Hazard identification No.	UN No.	Name and description
																		Packages	Bulk	Loading, unloading and handling	Operation			
	3.1.2	2.2	2.2	2.1.1.3	5.2.2	3.3	3.4	3.5.1.2	4.1.4	4.1.4	4.1.10	4.2.5.2 7.3.2	4.2.5.3	4.3	4.3.5, 6.8.4	9.1.1.2	1.1.3.6 (8.6)	7.2.4	7.3.3	7.5.11	8.5	5.3.2.3		3.1.2
(1)	(2)	(3a)	(3b)	(4)	(5)	(6)	(7a)	(7b)	(8)	(9a)	(9b)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)	(19)	(20)	(1)	(2)
3480	LITHIUM ION BATTERIES (including lithium ion polymer batteries)	9	M4		9A	188 230 310 348 376 377 387 636 677	0	E0	P903 P908 P909 P910 P911 LP903 LP904 LP905 LP906								2 (E)						3480	LITHIUM ION BATTERIES (including lithium ion polymer batteries)

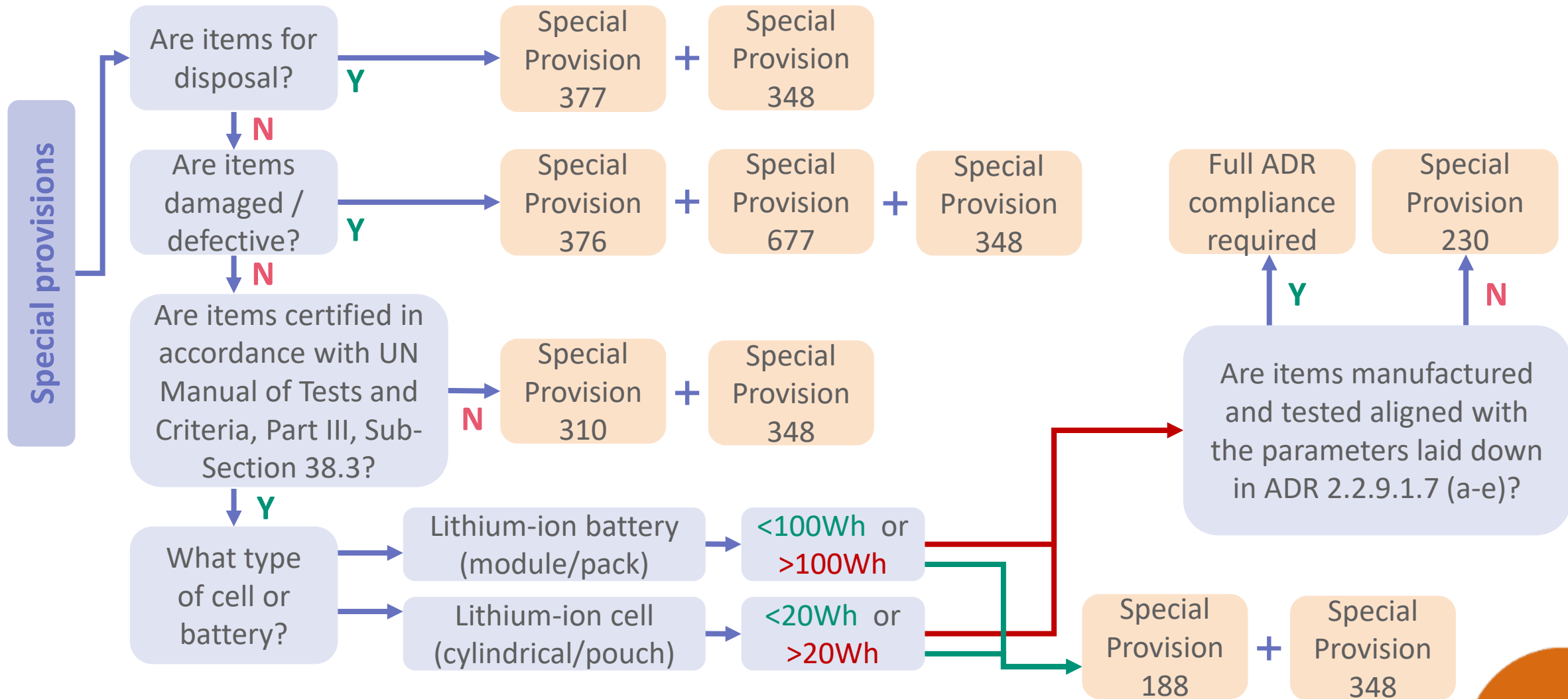
Class code

Special provisions

Packing instructions

Transport category

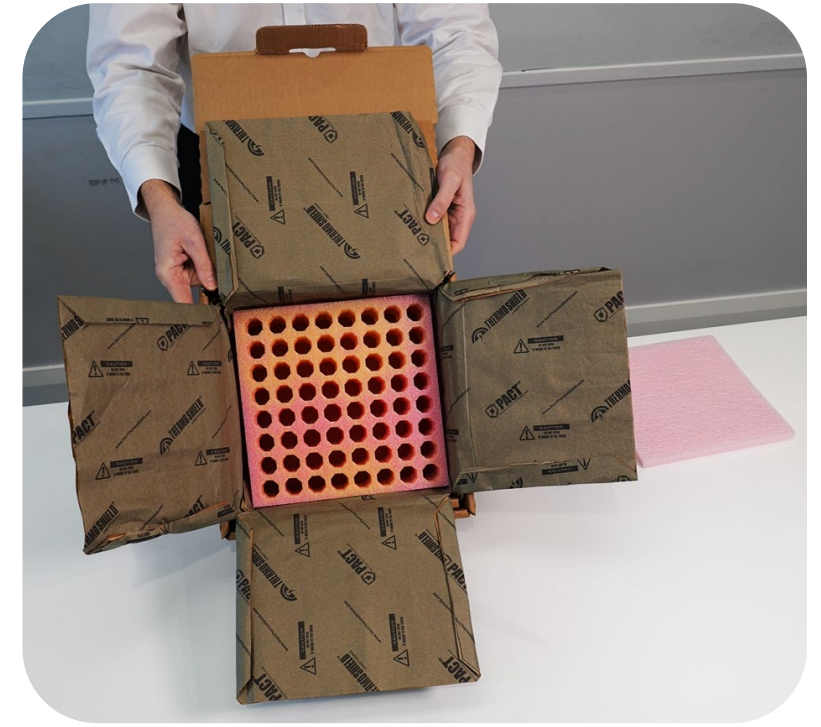
Part 5: Special provisions



Part 4: Packing instructions

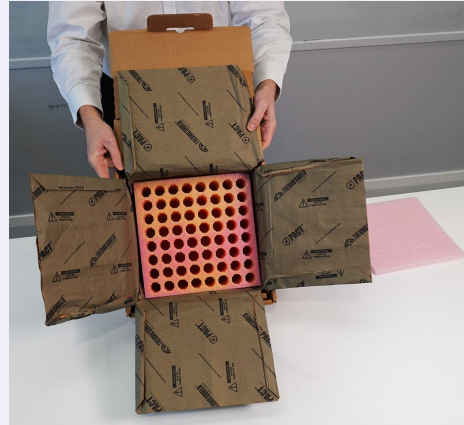
- Prototype cells must be packed in accordance with packing instruction P910, UN38.3 tested cells must use P903.
- What you'll need:

	Prototype cells	UN38.3 tested cells
UN-certified box or crate	✓	✓
Box marked with 'UN3480 LITHIUM-ION BATTERIES'	✓	✓
Inner box/ outer box	✓	
Thermal shielding	✓	
Anti-static foam inserts	✓	✓
Class 9 – model 9A label	✓	✓
Orientation arrows X 2 opposite sides.	✓	✓



Packaging at UKBIC

Cylindrical cell packaging



Pouch cell packaging

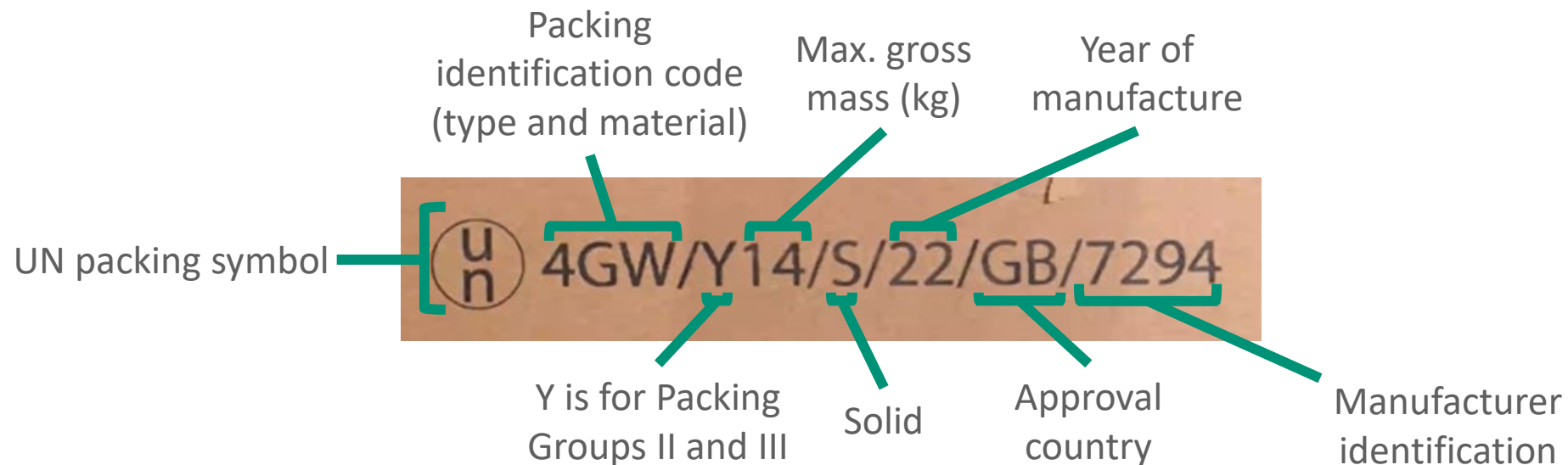


What does a Packaging Instruction Look Like?

Circumstance	Applicable Special Provision	Applicable Packing Instruction	Applicable Packing Instruction
...cells are damaged / defective such that they do not confirm to the type tested according to the Manual of Tests and Criteria (2.2.9.1.7)	376 376 Lithium ion cells or batteries and lithium metal cells or batteries identified as being damaged or defective such that they do not conform to the type tested according to the applicable provisions of the Manual of Tests and Criteria shall comply with the requirements of this special provision. For the purposes of this special provision, these may include, but are not limited to: - Cells or batteries identified as being defective for safety reasons; - Cells or batteries that have leaked or vented; - Cells or batteries that cannot be diagnosed prior to carriage; or - Cells or batteries that have sustained physical or mechanical damage. NOTE: In assessing a battery as damaged or defective, the type of battery and its previous use and manner shall be taken into account. Cells and batteries shall be carried according to the provisions applicable to UN No. 3090, UN No. 3091, UN No. 3480 and No. UN 3481, except special provision 376 and as otherwise stated in this special provision. Packages shall be marked "DAMAGED/DEFECTIVE LITHIUM-ION BATTERIES" or "DAMAGED/DEFECTIVE LITHIUM-METAL BATTERIES", as applicable. Cells and batteries shall be packed in accordance with packing instructions P908 of 4.1.4.1 or LP904 of 4.1.4.3, as applicable. Cells and batteries liable to rapidly disassemble, dangerously react, produce a flame or a dangerous evolution of heat or a dangerous emission of toxic, corrosive or flammable gases or vapours under normal conditions of carriage shall not be carried except under conditions approved by the competent authority of any ADR Contracting Party who may also recognise an approval granted by the competent authority of a country which is not an ADR Contracting Party provided that this approval has been granted in accordance with the procedures applicable according to RED, ADR, ADR, the IEC Code or the IEC Code Technical Instructions. In this case the cells and batteries are assigned to transport category II.	P908 P908 PACKING INSTRUCTION P908 This instruction applies to damaged or defective lithium ion cells and batteries and damaged or defective lithium metal cells and batteries, including those contained in equipment, of UN Nos. 3090, 3091, 3480 and 3481. The following packagings are authorised provided the general provisions of 4.1.1 and 4.1.3 are met: For cells and batteries and equipment containing cells and batteries: Drums (1A2, 1B2, 1N2, 1H2, 1D, 1G); Boxes (4A, 4B, 4N, 4C1, 4C2, 4D, 4F, 4G, 4H1, 4H2); Jerricans (3A2, 3B2, 3H2). Packagings shall conform to the packing group II performance level. 1. Each damaged or defective cell or battery or equipment containing such cells or batteries shall be individually packed in inner packaging and placed inside an outer packaging. The inner packaging or outer packaging shall be leak-proof to prevent the potential release of electrolyte. 2. Each inner packaging shall be surrounded by sufficient non-combustible and non-conductive thermal insulation material to protect against a dangerous evolution of heat. 3. Sealed packagings shall be fitted with a venting device when appropriate. 4. Appropriate measures shall be taken to minimize the effects of vibration and shocks, prevent movement of the cells or batteries within the package that may lead to further damage and a dangerous condition during carriage. Cushioning material that is non-combustible and non-conductive may also be used to meet this requirement. 5. Non-combustibility shall be assessed according to a standard recognized in the country where the packaging is designed or manufactured. For testing cells or batteries, sufficient inert absorbent material shall be added to the inner or outer packaging to absorb any release of electrolyte. A cell or battery with a net mass of more than 30 kg shall be limited to one cell or battery per outer packaging. Additional requirement: Cells or batteries shall be protected against short circuit.	LP904
... cells are for disposal / recycling	377 377 Lithium ion and lithium metal cells and batteries and equipment containing such cells and batteries carried for disposal or recycling, either packed together with or packed without non-lithium batteries, may be packaged in accordance with packing instruction P909 of 4.1.4.1. These cells and batteries are not subject to the requirements of 2.2.9.1.7 (a) to (e). Packages shall be marked "LITHIUM BATTERIES FOR DISPOSAL" or "LITHIUM BATTERIES FOR RECYCLING". Identified damaged or defective batteries shall be carried in accordance with special provision 376 and packaged in accordance with packing instruction P908 of 4.1.4.1 or packing instruction LP904 of 4.1.4.3, as applicable.	P909 P909 PACKING INSTRUCTION P909 This instruction applies to lithium ion cells and batteries and lithium metal cells and batteries, including those contained in equipment, of UN Nos. 3090, 3091, 3480 and 3481, which are carried for disposal or recycling. The following packagings are authorised provided the general provisions of 4.1.1 and 4.1.3 are met: Drums (1A2, 1B2, 1N2, 1H2, 1D, 1G); Boxes (4A, 4B, 4N, 4C1, 4C2, 4D, 4F, 4G, 4H1, 4H2); Jerricans (3A2, 3B2, 3H2). Packagings shall conform to the packing group II performance level. 1. Each damaged or defective cell or battery or equipment containing such cells or batteries shall be individually packed in inner packaging and placed inside an outer packaging. The inner packaging or outer packaging shall be leak-proof to prevent the potential release of electrolyte. 2. Each inner packaging shall be surrounded by sufficient non-combustible and non-conductive thermal insulation material to protect against a dangerous evolution of heat. 3. Sealed packagings shall be fitted with a venting device when appropriate. 4. Appropriate measures shall be taken to minimize the effects of vibration and shocks, prevent movement of the cells or batteries within the package that may lead to further damage and a dangerous condition during carriage. Cushioning material that is non-combustible and non-conductive may also be used to meet this requirement. 5. Non-combustibility shall be assessed according to a standard recognized in the country where the packaging is designed or manufactured. For testing cells or batteries, sufficient inert absorbent material shall be added to the inner or outer packaging to absorb any release of electrolyte. A cell or battery with a net mass of more than 30 kg shall be limited to one cell or battery per outer packaging. Additional requirement: Cells or batteries shall be protected against short circuit.	Standard
... cells are production runs of <100 cells/batteries or prototype cells which are being carried for testing	310 310 The testing requirements in the Manual of Tests and Criteria, part III sub-section 38.3 do not apply to production runs, consisting of not more than 100 cells and batteries, or to pre-production prototypes of cells and batteries when these prototypes are carried for testing when packaged in accordance with packing instruction P910 of 4.1.4.1. The transport document shall include the following statement: "Carriage in accordance with special provision 310". Damaged or defective cells, batteries, or cells and batteries contained in equipment shall be carried in accordance with special provision 376 and packaged in accordance with packing instructions P908 of 4.1.4.1 or LP904 of 4.1.4.3, as applicable. Cells, batteries or cells and batteries contained in equipment carried for disposal or recycling may be packaged in accordance with special provision 377 and packing instruction P909 of 4.1.4.1.	P910 P910 PACKING INSTRUCTION P910 This instruction applies to production runs of not more than 100 cells and batteries, or to pre-production prototypes of cells and batteries, when these prototypes are carried for testing. The following packagings are authorised provided the general provisions of 4.1.1 and 4.1.3 are met: Drums (1A2, 1B2, 1N2, 1H2, 1D, 1G); Boxes (4A, 4B, 4N, 4C1, 4C2, 4D, 4F, 4G, 4H1, 4H2); Jerricans (3A2, 3B2, 3H2). Packagings shall conform to the packing group II performance level. 1. Each damaged or defective cell or battery or equipment containing such cells or batteries shall be individually packed in inner packaging and placed inside an outer packaging. The inner packaging or outer packaging shall be leak-proof to prevent the potential release of electrolyte. 2. Each inner packaging shall be surrounded by sufficient non-combustible and non-conductive thermal insulation material to protect against a dangerous evolution of heat. 3. Sealed packagings shall be fitted with a venting device when appropriate. 4. Appropriate measures shall be taken to minimize the effects of vibration and shocks, prevent movement of the cells or batteries within the package that may lead to further damage and a dangerous condition during carriage. Cushioning material that is non-combustible and non-conductive may also be used to meet this requirement. 5. Non-combustibility shall be assessed according to a standard recognized in the country where the packaging is designed or manufactured. For testing cells or batteries, sufficient inert absorbent material shall be added to the inner or outer packaging to absorb any release of electrolyte. A cell or battery with a net mass of more than 30 kg shall be limited to one cell or battery per outer packaging. Additional requirement: Cells or batteries shall be protected against short circuit.	Standard

Part 4: UN specifications explained

- All dangerous goods that are classified for transport **MUST** be packed in UN specified packaging
- All the letters and numbers within the code have their own meaning indicating if the package can be used for dangerous goods



Part 5: Marking

- Special Provision 188 provides exemptions for transporting small batteries, avoiding full dangerous goods regulations, when:
 - Cells are less than 20Wh
 - Batteries are less than 100Wh
- Use a standard box inner and outer
- Use orientation arrows, opposite sides
- **Apply the lithium battery mark**
- No dangerous goods note needed



Part 5: Labelling

- Prototype cells and UN38.3 tested cells both need to display a Class 9 – model 9A label
- It must be placed at a 45° angle on the top or side of the box or crate
- This applies to cells over 20Wh and batteries over 100Wh



Part 5: Documentation

- Dangerous goods information **MUST** be in the correct order on the dangerous goods note
- When shipping prototype cells or batteries the statement in SP310 must be on the transport document
- The net mass and gross weight **MUST** be shown on the document
- A trained person must be the person creating and signing the dangerous goods note for movement of dangerous goods
- Download a template at:
<https://www.gov.uk/government/publications/dangerous-goods-declaration-note>

Example dangerous goods note

MULTIMODAL DANGEROUS GOODS FORM				
This form may be used as a dangerous goods declaration as it meets the requirements of SOLAS, chapter VII, regulation 4; MARPOL, Annex III, Regulation 4.				
1 Shipper/Consignor/Sender UK Battery Industrialisation Centre Rowley Road Baginton Coventry CV8 3AL		2 Transport document number		
		3 Page No 1 of 1	4 Shipper's reference	
		5 Freight Forwarder's Reference		
6 Consignee		7 Carrier (to be completed by the carrier)		
Address of recipient		SHIPPER'S DECLARATION I hereby declare that the contents of this consignment are fully and accurately described below by the Proper Shipping Name, and are classified, packaged, marked and labelled/placarded and are in all respects in proper condition for transport according to the applicable international and national governmental regulations.		
8 This shipment is within the limitations prescribed for: (Delete non-Applicable) Passenger-and-Cargo-Aircraft Cargo-Aircraft-Only		9 Additional handling information		
10 Vessel Not applicable	11 Port/Place of loading Not applicable			
12 Port/Place of discharge Not applicable	13 Destination			
14 Shipping Marks *Number and kind of packages: description of goods		Gross mass (kg)	Net mass (kg)	Cube (m³)
UN 3480 LITHIUM-ION BATTERIES CLASS 9 (E) 3 X UN 4D PLYWOOD BOXES PACKED ON 1 PALLET. CONTAINING NET MASS 105KG		150	105	
"Carriage in accordance with special provision 310"				
15 Container identification number / vehicle registration no.	16. Seal number(s)	17 Container / Vehicle size & type	18 Tare mass (kg)	19 Total gross mass (including tare) (kg)
CONTAINER/VEHICLE PACKING CERTIFICATE I hereby declare that the goods described above have been packed/loaded into the container/vehicle identified above in accordance with the applicable provisions ** MUST BE COMPLETED AND SIGNED FOR ALL CONTAINER / VEHICLE LOADS BY PERSON RESPONSIBLE FOR PACKING / LOADING		21 RECEIVING ORGANISATION RECEIPT Received the above number of packages/containers/trailers in apparent good order and condition, unless stated hereon: RECEIVING ORGANISATION REMARKS:		
20 Name of Company UK Battery Industrialisation Centre		Haulier's Name	Address of recipient	
Name/status of declarant Carl Wootton / Logistics operations lead.		Vehicle Registration No.		
Place and Date Coventry, UK.		Date		
Signature of declarant		DRIVER'S SIGNATURE		

ADR small loads limits under 1.1.3.6

- Table 1.1.3.6 refers to the quantity of dangerous goods permitted on a load before full ADR applies to the load
- For UN 3480 maximum quantity permitted for transport category 2 is 333kg
- 8.1.4.2
 - *Transport units carrying dangerous goods in accordance with 1.1.3.6 shall be equipped with one portable fire extinguisher for inflammability classes A, B and C, with a minimum capacity of 2kg dry powder (or an equivalent capacity for any other suitable extinguishing agent)*



Part 5: Other carrier responsibilities

Placarding

- Fire fighting equipment
- Annex B: construction of vehicles
- Requirements for vehicle crew (Part 8)
- Requirements concerning the construction and approval of vehicles





UK BATTERY
INDUSTRIALISATION
CENTRE

Sea and air freight

Sea freight

- **Sea:** International Maritime Dangerous Goods (IMDG) Code [2024-2026]
 - Largely reflects ADR guidance, with guidance given on loading to the vessel
 - Stowage and segregation rules are massively different to ADR
 - Packing instruction quantities permitted under ADR will be different for some UN numbers under the IMDG code
 - If your goods are going on a multi-modal journey (road and sea) then the IMDG regulations need to be complied with as IMDG overrides ADR



Air freight (IATA regulations)



- IATA regulations should be consulted if you are wanting to send cells by air
- Prototype cells can only be transported by air under special provision A88
- State approval will need to be granted. In the UK, this means getting permission from the Civil Aviation Authority
- You can ship lithium batteries (UN3480) via air if:
 - On a cargo aircraft, not a passenger aircraft
 - Batteries are UN38.3 certified (not the case for most UKBIC customers)
 - Shipment is packaged and labelled correctly
 - State of Charge is under 30%
 - Batteries are not damaged or defective

Summary

- ADR is a European agreement and is a legal requirement
- Ensure your company is legal and compliant
- There are consequences for non-compliance
- Always consult the regulations before shipping
- It's simple when you know how!



Health and
safety

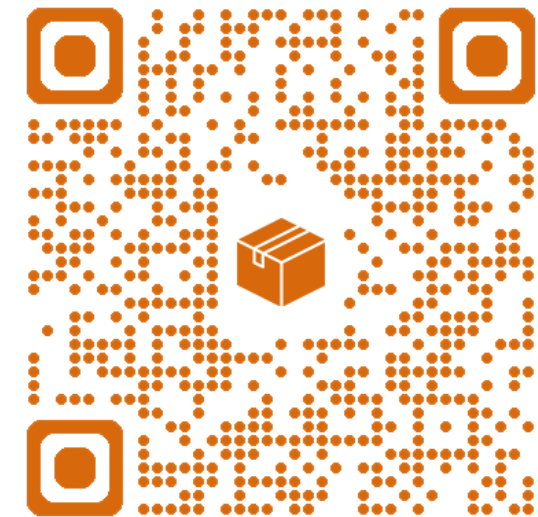


Financial risk



Legal
implications

Watch our tutorial



<https://www.youtube.com/watch?v=nLE1IruIUN4>

Question and answer panel:

Please use the Q&A function and not the Chat function



Tom Somerville

Head of Supply Chain and
Logistics



Carl Wootton

Logistics Operations Lead



Webinar Host:

Richard Robinson

PR & Communications Manager

Webinar: Application of physics informed machine learning models and simulations tools in cell and battery design and performance predictions – challenges and novelties

29 October 2026



Kenneth Nwanoro
Senior Modelling &
Simulation Engineer

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Thank you



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brochure



Delivery partner - Battery Innovation Programme



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Innovate
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