



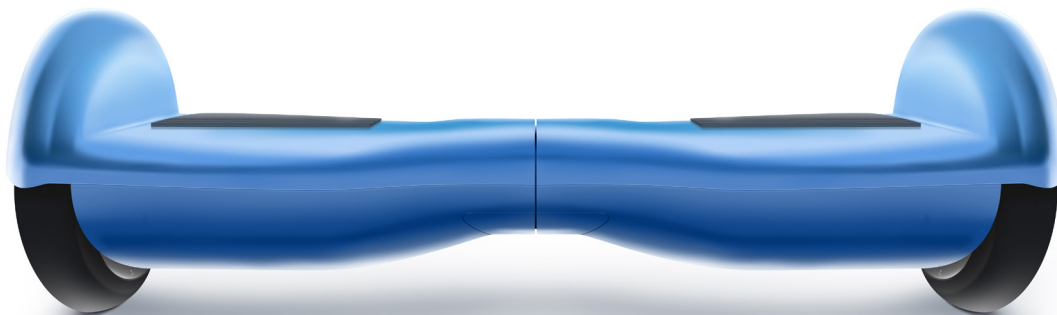
U.S. Department  
of Transportation

Pipeline and  
Hazardous Materials  
Safety Administration



# LITHIUM BATTERY TEST SUMMARIES (TS)

REVISED JULY 2024



*The contents of this guide do not have the force and effect of law and are not meant to bind the public in any way. This guide is intended only to provide information to the public regarding existing requirements under the Hazardous Materials Regulations.*

## BACKGROUND

For safety reasons, lithium batteries must be subjected to a series of design tests per sub-section 38.3 of the United Nations (UN) Manual of Tests and Criteria. Downstream shippers and consumers, however, often cannot confirm whether their battery was successfully tested. To address this issue, the Hazardous Materials Regulations (HMR; Parts 171-180) were amended to require manufacturers and distributors of lithium cells or batteries, except for button cells installed in equipment (including circuit boards), to make available lithium battery test summaries (TS) using a standardized set of elements specified in the UN Manual of Tests and Criteria, Part III, Subsection 38.3, Paragraph 38.3.5.

The Pipeline and Hazardous Materials Safety Administration (PHMSA) developed this compliance assistance tool to assist manufacturers and distributors with understanding and implementing the TS requirement. PHMSA adopted this requirement as part of its [HM-215Q](#) international harmonization rulemaking, effective January 1, 2022. The TS requirement applies to lithium cells or batteries manufactured on or after January 1, 2008.\* [HM-215Q](#) updated the requirement to except button cells installed in equipment, effective May 10, 2024.

**EACH MANUFACTURER AND  
SUBSEQUENT DISTRIBUTOR OF  
LITHIUM CELLS OR BATTERIES,  
EXCEPT BUTTON CELLS  
INSTALLED IN EQUIPMENT  
(INCLUDING CIRCUIT BOARDS),  
MANUFACTURED ON OR  
AFTER JANUARY 1, 2008  
MUST MAKE AVAILABLE A TEST  
SUMMARY. SEE § 173.185(a)(3).**

*\*This is a global requirement for domestic and international transportation. In fact, for lithium cells and batteries offered for transportation in accordance with the ICAO Technical Instructions for the Safe Transport of Dangerous Goods by Air (ICAO TI) or the International Maritime Dangerous Goods Code (IMDG Code), the TS requirement was effective January 1, 2020.*

## WHAT INFORMATION MUST BE INCLUDED IN THE LITHIUM BATTERY TEST SUMMARY?

### LITHIUM CELL/BATTERY TS IN ACCORDANCE WITH SUB-SECTION 38.3 OF MANUAL OF TESTS AND CRITERIA

The following information shall be provided in the TS:

<b>A.</b>	Name of cell, battery, or product manufacturer, as applicable;
<b>B.</b>	Cell, battery, or product manufacturer's contact information to include address, telephone number, e-mail address, and website for more information;
<b>C.</b>	Name of the test laboratory to include address, telephone number, e-mail address, and website for more information;
<b>D.</b>	A unique test report identification number;
<b>E.</b>	Date of test report;
<b>F.</b>	Description of cell or battery to include at a minimum: <ul style="list-style-type: none"><li>i. Lithium ion or lithium metal cell or battery;</li><li>ii. Mass of cell or battery;</li><li>iii. Watt-hour rating, or lithium content;</li><li>iv. Physical description of the cell/battery; and</li><li>v. Cell or battery model number or, alternatively, if the test summary is established for a product containing a cell or battery, the product model number;</li></ul>
<b>G.</b>	List of tests conducted and results (i.e., pass/fail);
<b>H.</b>	Reference to assembled battery testing requirements, if applicable (i.e., 38.3.3 (f) and 38.3.3 (g));
<b>I.</b>	Reference to the revised edition of the Manual of Tests and Criteria used and to amendments thereto, if any; and
<b>J.</b>	Name and title of a responsible person as an indication of the validity of information provided.

(See 49 CFR 173.185 (a)(3))

Lithium battery test summaries can be made available in a variety of ways, including via a product information sheet (like the example below) and/or via a website. There is no set form or format for a lithium battery TS, but it must include all the required elements.

## Test Summary Example

### UN 38.3 Lithium Battery Test Summary

Cell, Battery or Product Model Number					
Item Number:					
Item Name:					

Cell, battery, or product manufacturer's contact information					
Name:					
Address:					
City:	State:	ZIP:	Country:		
Telephone:	E-mail:	Website:			

Test Laboratory					
Name:					
Address:					
City:	State:	ZIP:	Country:		
Telephone:	E-mail:	Website:			

Cell or Battery Description					
Cell or Battery:			Physical Description (dimensions, appearance):		
Cell or Battery Type:					
Watt-hour rating or Lithium Content:					
Completed Cell or Battery Weight:					
Unique Test Report ID Number:			Date of test report:		
List of Tests Completed:					
Yes	No		Pass	Fail	Additional Comments (or indicate compliance with other standards, e.g., Underwriters Laboratory):
		Test T.1: Altitude simulation			
		Test T.2: Thermal test			
		Test T.3: Vibration			
		Test T.4: Shock			
		Test T.5: External short circuit			
		Test T.6: Impact/Crush			
		Test T.7: Overcharge			
		Test T.8: Forced discharge			Reference to the revised edition of the Manual of Tests and Criteria used and to amendments thereto, if any:

Name and title of a responsible person as an indication of the validity of information provided.

---

# QUESTIONS/ANSWERS RELATED TO THE LITHIUM BATTERY TS:

**Q1:** Does the TS requirement apply to stand-alone cells or batteries as well as cells or batteries contained within products?

**A1:** The TS requirement applies to cell and batteries contained in a product, except for button cells installed in equipment (including circuit boards).

---

**Q2:** I manufacture a product powered by lithium batteries. Must I produce a TS?

**A2:** You would have to make available information about the lithium battery contained in your product, as required under § 173.185(a)(3) of the HMR. You can obtain information about the lithium batteries contained in your product from your supplier.

---

**Q3:** I distribute a product that contains batteries produced from more than one manufacturer. May I include multiple batteries/manufacturers/products on one report?

**A3:** Yes, it is acceptable to have a single document that covers multiple batteries/manufacturers/products, provided all required information is included.

---

**Q4:** Is it acceptable to list the various test laboratories, tests, and range of revisions tested to for the UN 38.3 revision and amendments?

**A4:** Yes, it is acceptable to have multiple test laboratories and products provided all required information is included. The test laboratory is not required to be aligned with a specific battery or product on the TS when the TS covers multiple batteries/products. It is required to have the test report number and date of test for each cell/battery/product listed on the TS.

---

**Q5:** What is meant by "physical description" of cell/battery/product?

**A5:** A physical description is intended to provide information on the general characteristics of the battery including shape, size, and the intended product application. Pictures or product sketches are especially helpful here. For example: a cylindrical cell measuring 180 mm in length and 65 mm in diameter or a lithium pouch battery permanently installed in a cellular telephone. Alternatively, the description could be the invoice description or marketing name of the product.

---

**Q6:** When must the TS be made available?

**A6:** The TS should be made available to an individual or entity in the supply chain upon request.



<b>Q7:</b>	Do test summaries expire?
<b>A7:</b>	No, new or revised lithium battery test summary information would be required only if the cell battery/device is of a different design that necessitated re-testing. In that instance, a new lithium battery test summary would need to be generated.
<b>Q8:</b>	Must a manufacturer or distributor include the TS with product shipments?
<b>A8:</b>	No, the TS does not need to be included with shipments, the product manufacturer or distributor only has to make the information available. This may be achieved by placing this information on a website or through alternative means.
<b>Q9:</b>	Would a general statement on a safety data sheet, website, email, or other document provided by the manufacturer that the lithium batteries meet the test criteria satisfy the requirements of § 173.185(a)(3)?
<b>A9:</b>	Although a shipper could rely on information provided by the battery or product manufacturer as evidence that the cell or battery meets the required tests, this would not meet the requirement for a manufacturer or distributor to make available a lithium battery test summary as required by § 173.185(a)(3).
<b>Q10:</b>	What is the model number and how can I find it?
<b>A10:</b>	<p>The model number is a unique identifier that links a battery or product to a TS.</p> <ul style="list-style-type: none"> <li>- If the TS is for a product containing batteries, the model number(s) would be found on the product.</li> <li>- If the TS is for stand-alone batteries/stand-alone cells, the model number would be found on the batteries/cells.</li> </ul>
<b>Q11:</b>	If a manufacturer considers their suppliers, test laboratory, and battery data confidential and competitive information, how would TS compliance be achieved?
<b>A11:</b>	All 10 data elements and listed subsets of information must be on the TS. Test laboratory information may cover a range of products.

For more information, visit PHMSA's [Transporting Lithium Batteries](#) webpage via the QR code (below).





**For additional information contact:**

**The Hazardous Materials Info Center**

**1-800-HMR-4922**

(1-800-467-4922)

E-mail: [infocntr@dot.gov](mailto:infocntr@dot.gov)

<http://hazmat.dot.gov>

Pipeline and Hazardous Materials  
Safety Administration

Outreach, Engagement, and Grants Division

East Building, 2nd Floor

1200 New Jersey Ave., SE

Washington, DC 20590

E-mail: [training@dot.gov](mailto:training@dot.gov)

202-366-4900

202-366-7342 (Fax)



U.S. Department  
of Transportation

**Pipeline and  
Hazardous Materials  
Safety Administration**

PHH50-0216-0724