

Batteries Carried by Airline Passengers

Frequently Asked Questions

Q1. What kinds of batteries are allowed in **carry-on baggage (in the aircraft cabin)?**

A1. Passengers can carry most consumer-type batteries and portable battery-powered electronic devices for their own personal use.

Spare batteries must be protected from damage and short circuit. Battery-powered devices must be protected from accidental activation and heat generation.

Batteries **allowed** in **carry-on baggage** include:

- ▶ **Dry Cell Alkaline** batteries; typical AA, AAA, C, D, 9-volt, button sized cells, etc.
- ▶ **Dry Cell Rechargeable batteries** such as Nickel Metal Hydride (NiMH) and Nickel Cadmium (NiCad).
- ▶ **Lithium Ion** batteries (a.k.a.: rechargeable lithium, lithium polymer, LIPO, secondary lithium). Passengers may carry all consumer-sized lithium ion batteries [up to 100 watt hours (WH) per battery]. This size covers AA, AAA, cell phone, PDA, camera, camcorder, handheld game, tablet, portable drill and standard laptop computer batteries. The watt hours (Wh) rating is marked on newer lithium ion batteries and is explained in **Q3/A3** below. External chargers are also considered to be a battery.

Passengers can also bring **two (2) Larger Lithium Ion** batteries (100-160 watt hours per battery) in their carry-on. This size covers the largest aftermarket extended-life laptop batteries and most lithium ion batteries for professional-grade audio/visual equipment. Most lithium ion batteries for consumer are below this size.

- ▶ **Lithium Metal** batteries (a.k.a.: non-rechargeable lithium, primary lithium). These batteries are often used with cameras and other small personal electronics. Consumer-sized batteries (up to 2 grams of lithium per battery) may be carried. This includes all the typical non-rechargeable batteries used in cameras (AA, AAA, 123, CR123A, CR1, CR2, CRV3, CR22, 2CR5, etc.) as well as the flat round lithium button cells.
- ▶ **Nonspillable wet batteries** (absorbed electrolyte), limited to 12 volts and 100 watt hours per battery. These batteries must be the absorbed electrolyte type (gel cells, AGM, etc.) that meet the requirements of 49 CFR 173.159a (d); i.e. no electrolyte will flow from a cracked battery case. Batteries must be in strong outer packaging or installed in equipment. Passengers are also limited to two (2) spare (uninstalled) batteries. Spare batteries' terminals must be protected (non-conductive caps, tape, etc.) within the outer packaging. Batteries and outer packaging must be marked "nonspillable" or "nonspillable battery." *Note: This exception is for portable electronic devices, not for vehicle batteries. There are separate exceptions for powered wheelchairs.*

Q2. What kinds of batteries are allowed in **checked baggage (in the aircraft hold)?**

A2. Except for **spare** (uninstalled) **lithium metal** and **lithium ion** batteries, **all** the batteries allowed in carry-on baggage are also allowed in checked baggage. The batteries must be protected from damage and short circuit or installed in a device. Battery-powered devices—particularly those with moving parts or those that could heat up—must be protected from accidental activation.

Spare Lithium batteries (both Lithium Metal and Lithium Ion/Polymer) are prohibited in checked baggage – this includes external chargers.

Q3. How do I determine the watt hours (Wh) rating of a battery?

A3. To determine watt hours (Wh), multiply the volts (V) by the ampere hours (Ah). Example: A 12-volt battery rated to 8 Amp hours is rated at 96 watt hours (12 x 8 = 96). For milliamp hours (mAh), multiply by the volts and divide by 1000.

Q4. Is there a limit to the number of batteries I can carry?

A4. There is no limit on the number of most consumer-size batteries or battery-powered devices that a passenger can carry for personal use. The larger lithium ion batteries are limited to two (2) batteries per passenger; see "Lithium ion batteries" explanation above. Only two (2) spare/uninstalled nonspillable wet (absorbed electrolyte) batteries may be carried.

Q5. What does "protected from short circuit" mean?

A5. When metal objects such as keys, coins, tools or other batteries come in contact with both terminals of a battery it can create a "circuit" or path for electricity to flow through. Electrical current flowing through this unprotected short circuit can cause extreme heat and sparks and even start a fire. To prevent short circuits, keep spare batteries in their original packaging, a battery case, or a separate pouch or pocket. Make sure loose batteries can't move around. Placing tape over the terminals of unpackaged batteries also helps to insulate them from short circuit.