

# Batteries Carried by Airline Passengers

## Frequently Asked Questions

### Q1. What kinds of batteries does the FAA allow in carry-on baggage (in the aircraft cabin)?

**A1.** For carry-on baggage checked at the gate or planeside, see Q2, below. Passengers can carry most consumer-type batteries and portable battery-powered electronic devices for their own personal use in carry-on baggage. Spare batteries must be protected from damage and short circuit. Battery-powered devices must be protected from accidental activation and heat generation.

Damaged or recalled batteries, including when in a device, must not be carried. **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). For rechargeable lithium ion batteries; see next paragraph.
- **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 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 #3 below. External chargers are also considered to be a battery.

With airline approval, devices can contain larger lithium ion batteries (101-160 watt hours per battery), but spares of this size are limited to two batteries in carry-on baggage only. This size covers the largest aftermarket extended-life laptop batteries and most lithium ion batteries for professional-grade audio/visual equipment.

- **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 lithium 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 packagings 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 does the FAA allow in checked baggage (including gate-checked bags)?

**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 metal and lithium ion/polymer batteries are prohibited in checked baggage—this includes external battery packs. Electronic cigarettes and vaporizers are also prohibited in checked baggage.** "Checked baggage" includes bags checked at the gate or planeside.

### 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), divide by 1000 (to get to Ah) and then multiply by the volts.

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

**A4.** The main limit is that the batteries and devices must be for personal use (includes professional use). Batteries and battery-powered devices carried for resale or for distribution by a vendor do not qualify for these exceptions. There is a two-spare limit on the large lithium-ion (101-160 Wh) and nonspillable batteries (see the chart on the next page).

### 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.

**For a quick reference guide, see illustrated table on next page...**

# Batteries Allowed in Airline Passenger Baggage in the US

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Based on US DOT regulations (49 CFR, Sec. 175.10). TSA security, individual airline, and international rules may, at times, be more restrictive.

<b>Type of Battery</b> There is no limit to the number of batteries or devices carried for personal use unless specified below.	<b>Allowed in <u>carry-on</u> baggage?</b> 	<b>Allowed in <u>checked</u><sup>1</sup> baggage?</b> 		
	In equipment <sup>2</sup>	Spares	In equipment	Spares
<b>Dry alkaline batteries</b> 	<b>YES</b>	<b>YES</b> When protected from damage and short circuit	<b>YES</b>	<b>YES</b> When protected from damage and short circuit
<b>Dry rechargeable</b> – Nickel Metal Hydride (NiMH), Nickel Cadmium (NiCad), etc.  For lithium ion, see below.	<b>YES</b>	<b>YES</b> When protected from damage and short circuit	<b>YES</b>	<b>YES</b> When protected from damage and short circuit
<b>Lithium ion</b> (rechargeable lithium, lithium polymer, LIPO) as used in small consumer electronics, such as cell phones, tablets, tools, cameras, PDAs, and laptops. Limited to 100 watt hours <sup>3</sup> or less per battery. 	<b>YES</b>	<b>YES</b> When protected from damage and short circuit	<b>YES</b> <i>E-cigarettes and vaporizers are prohibited in checked baggage.</i>	<b>NO</b>
<b>Larger lithium ion, 101-160 watt hours<sup>3</sup> per battery—<u>with airline approval</u>.</b> <b>Limits: Two spare batteries per passenger—<u>with airline approval</u>.</b> 	<b>YES</b> <i>Airline approval required</i>	<b>YES</b> When protected from damage and short circuit, and... <i>Airline approval required</i>	<b>YES</b> <i>Airline approval required</i>	<b>NO</b>
<b>Lithium metal</b> (non-rechargeable) as used in small consumer electronics such as cameras, LED flashlights, watches, etc. (2 grams or less lithium per battery). 	<b>YES</b>	<b>YES</b> When protected from damage and short circuit	<b>YES</b> <i>E-cigarettes and vaporizers are prohibited in checked baggage.</i>	<b>NO</b>
<b>Nonspillable wet batteries (absorbed electrolyte)</b> for portable electronic devices, 12 volts and 100 watt hours <sup>3</sup> per battery. <b>Limits: Two spare batteries per passenger.</b> 	<b>YES</b>	<b>YES</b> When protected from damage and short circuit and in strong packaging. Battery and outer packaging must be marked "nonspillable."	<b>YES</b>	<b>YES</b> When protected from damage and short circuit and in strong packaging. Battery and outer packaging must be marked "nonspillable."

<sup>1</sup>Note: "Checked baggage" includes carry-on-bags checked at the gate or planeside. <sup>2</sup>Note: TSA security rules prohibit some power tools in carry-on baggage.

<sup>3</sup>Note: Watt hours (Wh) = Volts (V) x Amp hour (Ah) or for milliamp hours Wh = V x (mAh ÷ 1000)



# Airline Passengers and Lighters

## Frequently Asked Questions



The Federal Aviation Administration (FAA) enforces the U.S. Department of Transportation (DOT) Hazardous Materials Regulations in aviation. This includes *safety* rules on how airline passengers can carry lighters. The Transportation Security Administration (TSA) enforces *security* rules about what passengers can carry on the aircraft. The FAA guidance below considers both DOT and TSA rules for passengers carrying lighters.

### Q1. What type of lighter can I bring onto the aircraft?

**A1.** Under DOT rules (49 CFR 175.10), when traveling on a commercial airline, you can bring one (1) lighter that uses a flammable gas (butane) or that uses a flammable liquid that is absorbed in a lining (Zippo-type). The following restrictions apply:

- For safety reasons, permitted lighters must be in your carry-on or on your person (in your pocket), not in checked baggage. *See Q2. regarding special travel containers that allow lighters in checked baggage.*
- Under TSA regulations, torch lighters (a.k.a. jet lighters, blue flame lighters, cigar lighters) are forbidden in your carry-on or on your person. TSA rules also prohibit lighters that look like guns or other weapons.
- Containers of lighter fluid or gas (butane) are forbidden in carry-on and checked baggage.
- Micro torches, chef torches, utility torches, etc., are not considered lighters and are forbidden in carry-on and checked baggage. Fuel for such torches is also forbidden in carry-on and checked baggage.

### Q2. Is there any exception to the “one lighter only” rule or the “no torch lighters” rule?

**A2.** You can bring up to two (2) additional lighters—including torch lighters—in your checked baggage when you use DOT-approved airtight travel containers for lighters. Major lighter manufacturers such as Colibri, Prometheus, and Zippo have secured DOT special permits for their lighter travel containers. They are available from specialty stores and online. These DOT-approved containers are the only way you can carry the torch lighters that the TSA bans from the aircraft cabin. They are also the only way you can carry lighters in checked baggage (unless the lighter contains no fuel; see Q3.). Most of these containers are designed to hold one lighter; some hold two. When shopping for a travel container for your lighter, make sure the container is marked with the DOT special permit number and that you read and follow the instructions from the container manufacturer. These DOT special permits only apply to U.S. domestic air travel.

### Q3. Are empty lighters restricted?

**A3.** A lighter that is truly empty (absolutely no fuel residue or vapors) is not regulated by the DOT as a hazardous material. There is no limit on how many empty lighters you may carry; however, carrying multiple empty lighters could cause delays at security screening checkpoints. The FAA recommends that passengers pack empty lighters in checked baggage accompanied by a note explaining that they contain no fuel.

### Q4. Can I mail lighters or lighter fluid and butane refills?

**A4.** Lighters containing fuel or fuel residue are forbidden in the mail. Lighter fluid and butane refills are also forbidden in the mail.

**See next page for an illustrated quick reference table...**

# Airline Passengers and Lighters

The table below shows how lighters and related products may or may not be carried on the aircraft. Airline passengers may bring only one lighter or one book of matches into the aircraft cabin. This table is based on the U.S. DOT hazardous materials safety regulations (<http://SafeTravel.dot.gov>) and the TSA security regulations (<http://www.tsa.gov>).

Type of lighter or product	Allowed in aircraft cabin? (in carry-on bag or in your pocket)	Allowed in checked baggage?
Lighter containing flammable gas (butane, including disposable lighters) 	<b>Yes</b>	<b>No</b>
Lighter containing flammable liquid absorbed in a lining (Zippo-type) 	<b>Yes</b>	<b>No</b>
Lighter containing unabsorbed liquid (includes many large and antique wick lighters) 	<b>No</b>	<b>No</b>
Torch lighter (a.k.a. blue flame lighter, jet lighter, cigar lighter) <i>See Special Permit container below</i> 	<b>No</b>	<b>No</b>
Torch lighter or additional lighters in a DOT Special Permit container 	<b>No</b>	<b>Yes</b> (In the U.S.)
Lighter shaped like a gun or other weapon 	<b>No</b>	<b>No</b>
Lighter gas refills (butane) and lighter fluid 	<b>No</b>	<b>No</b>
Chef torch, micro torch, utility torch 	<b>No</b>	<b>No</b>
Flammable gas cylinders or canisters (butane, propane, etc.) 	<b>No</b>	<b>No</b>