U.S. Department
of Transportation

**Pipeline and Hazardous
Materials Safety
Administration**

1200 New Jersey Avenue, SE
Washington, DC 20590

SEP 2 0 2018

Sophy Chen
Counsel
Steinbrecher & Span LLP
1155 F Street, NW
Suite 1050
Washington, DC 20004

Reference No. 18-0072

Dear Ms. Chen:

This letter is in response to your May 11, 2018, letter requesting clarification of the Hazardous Materials Regulations (HMR; 49 CFR Parts 171-180) applicable to the carriage of lithium ion batteries on passenger aircraft. Specifically, you ask if an airline passenger carrying a lithium battery powered device and spare batteries for that device for professional purposes may use the § 175.10(a)(18) exception, provided that quantity limits are met. Furthermore, you request that your understanding of the following scenario is correct:

- A professional camera operator is traveling to a job site and carrying spare lithium ion batteries for use in equipment for work. The lithium ion batteries will not be resold or distributed.
- An unlimited number of lithium ion batteries that do not exceed 100 Watt-hour (Wh) may be carried in carry-on baggage.
- With the approval of the airline, two lithium ion batteries that exceed 100 Wh, but do not exceed 160 Wh, may be carried in carry-on baggage.

Your understanding is correct. Section 175.10(a)(18) of the HMR details exceptions for portable electronic devices, including those powered by lithium batteries and spare batteries for these devices when carried by passengers or crewmembers for personal use. In the scenario described in your request, the professional camera operator is eligible to carry lithium batteries in accordance with § 175.10(a)(18). Furthermore, § 175.10(a)(18)(ii), details the quantity and size limits of lithium ion batteries carried on passenger aircraft, which indicates that:

- The lithium ion batteries must not exceed 100 Wh;
- With the approval of the airline, portable electronic devices may contain lithium ion batteries exceeding 100 Wh, but not exceeding 160 Wh; and
- With the approval of the airline, no more than two individually protected lithium ion batteries each exceeding 100 Wh, but not exceeding 160 Wh, may be carried per person as spare batteries in carry-on baggage.

Please note that the lithium ion batteries must also be a type proven to meet the requirements of each test in the UN Manual of Tests and Criteria, Part III, Sub-section 38.3 and each spare lithium ion battery must be individually protected so as to prevent short circuits (e.g., by placement in original retail packaging, by otherwise insulating terminals by taping over exposed terminals, or placing each battery in a separate plastic bag or protective pouch).

I hope this information is helpful. Please contact us if we can be of further assistance.

Sincerely,

Dirk Der Kinderen
Chief, Standards Development
Standards and Rulemaking Division

Gelker
Batteries
18-0072

January, Ikeya CTR (PHMSA)

From: INFOCNTR (PHMSA)
Sent: Monday, May 14, 2018 5:12 PM
To: Hazmat Interps
Subject: FW: Request for Interpretation
Attachments: 2018-05-11_PHMSAInterpRequest_175-10-a-18-ii_Signed.pdf; AttA_FAA-Pack-Safe_Retrieved-2018-05-11.pdf; AttB_FAA-Airline-Passengers-And-Batteries_Retrieved-2018-05-11.pdf

Hi Ikeya,

Attached is a request for a letter of interpretation. Please let me know if you have any questions.

Thanks,
Jodi

From: Sophy Chen [mailto:schen@steinbrecherspan.com]
Sent: Friday, May 11, 2018 4:59 PM
To: INFOCNTR (PHMSA) <INFOCNTR.INFOCNTR@dot.gov>
Subject: Request for Interpretation

We respectfully submit this request for a formal interpretation, as described in the attached letter. We look forward to a prompt response. Thank you in advance for your help. — With best regards, Sophy

Sophy Chen | mobile: 202-329-4207

Steinbrecher & Span LLP | Washington, DC

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May 11, 2018

Mr. Shane Kelley
Director, Standards and Rulemaking Division
U.S. DOT/PHMSA (PHH-10)
1200 New Jersey Avenue, SE East Building, 2nd Floor
Washington, DC 20590

Re: Request for Interpretation of 49 C.F.R. § 175.10(a)(18)(ii)

Dear Mr. Kelley:

We are seeking confirmation that the exceptions in 49 C.F.R. § 175.10(a)(18) are available when an airline passenger is on business travel.

Section 175.10(a)(18) permits an air carrier passenger to travel with spare lithium batteries for personal use. Spare batteries must be carried in carry-on baggage only. Subsection 175.10(a)(18)(ii) permits a passenger to carry an unlimited number of batteries that do not exceed 100 Wh. And, for batteries exceeding 100 Wh but not exceeding 160 Wh, a passenger may carry (with airline approval) no more than two individually protected batteries per person as spares.

The Federal Aviation Administration has provided information about what "personal use" means under the regulation. FAA published guidance states, "With airline approval, passengers may also carry up to two spare larger lithium ion batteries (101-160 watt hours). This size covers the larger after-market extended-life laptop computer batteries and some larger batteries used in professional audio/visual equipment." This guidance explicitly acknowledges that the personal-use requirement in § 175.10(a)(18) includes professional use. The guidance clarifies that "[spare (uninstalled) lithium ion] batteries carried for further sale or distribution (vendor samples, etc.) are prohibited." *See* "Pack Safe," available at https://www.faa.gov/about/initiatives/hazmat_safety/ and reproduced at Attachment A.

Similarly, other FAA guidance states in response to "Is there a limit to the number of batteries or devices I can carry?" that "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." *See* "Batteries Carried by Airline Passengers," available at https://www.faa.gov/about/office_org/headquarters_offices/ash/ash_programs/hazmat/passenger_info/media/Airline_passengers_and_batteries.pdf and reproduced at Attachment B.

Our understanding is that § 175.10(a)(18)(ii) permits a professional camera operator who is an airline passenger traveling to a job site to carry in carry-on baggage as spares (A) an unlimited number of lithium ion batteries that do not exceed 100 Wh and (B) with the airline's approval, two lithium ion batteries that each exceed 100 Wh (but do not exceed 160 Wh).[1] The camera operator would use the spare batteries—personally—in equipment used for his work. They would not be resold or distributed.

Please confirm our understanding that being on business travel does not render the passenger exception in 49 C.F.R. § 175.10(a)(18)(ii) unavailable. If that is not the case, we would appreciate guidance on what rules and exceptions apply to the passenger and circumstances we have described.

Sincerely,

Sophy Chen

Sophy Chen
Counsel

[1] In addition, the camera operator/passenger would adhere to the exception's other requirements. That is, the passenger would carry only batteries of a type proven to meet the requirements of each test in the UN Manual of Tests and Criteria, Part III, Sub-section 38.3. 49 C.F.R. § 175.10(a)(18). And to prevent short circuits, each spare battery would be individually protected. *Id.*

Federal Aviation Administration

Pack Safe

Some of the common toiletry and electronics items you may have packed in your baggage are considered hazardous material. E-cigarettes (vaping devices), spare batteries for your electronics, nail polish, hair spray and other common items can be hazardous if not properly packed. The FAA recommends that passengers carry their portable electronic devices in their carry-on bags whenever possible instead of in checked baggage. The FAA requires that you carry e-cigarettes and spare lithium batteries in your carry-on baggage. They are always forbidden in checked baggage — including in bags checked at the gate or planeside.

For questions about how to safely pack other items in your checked baggage, please refer to the chart below. There are serious consequences for passengers who violate the hazardous materials rules.

For a Safe Start, Check the Chart!

Most hazardous materials are forbidden in carry-on and checked baggage. There are a few exceptions for some personal items such as toiletries, medicines, battery powered electronics and assistive devices. The chart below lists common hazardous materials often found in the home and office or used when traveling (the chart also includes some items that are not hazardous materials but the FAA gets lot of questions on them). Check to see which ones are allowed in checked and/or carry-on baggage and which ones cannot be carried at all. The checked baggage rules also apply to carry-on bags that are checked at the gate or at planeside. When using the chart, it's very important to read the "Details" section for important information such as packaging requirements and quantity limits. You can use the "Search" box to look up a particular item by name within the active tab.

Remember, this is just a listing of common hazardous materials; if you don't see your item here it doesn't mean it's allowed in baggage. **When in doubt, leave it out!**

Product Safety Recalls: If a product that is a hazardous material or that contains a hazardous material component (e.g., battery) is subject to a safety recall related to the hazardous material, it must not be carried aboard an aircraft or in baggage unless the recalled product/component has been replaced or repaired or otherwise made safe per manufacturer/vendor instructions. The FAA and your airline may offer further public guidance on individual recalled products.

Attachment A

Looking for other FAA hazmat information? The FAA Office of Hazardous Materials Safety (www.faa.gov/about/office_org/headquarters_offices/ash/ash_programs/hazmat/) web site contains information for airlines, cargo shippers, and passengers.

Note: The Transportation Security Administration (http://www.tsa.gov/) also has rules on "prohibited items" that pose a security threat. Though they sometimes overlap, the TSA security rules are separate from the FAA hazmat safety rules discussed here. For the TSA rules on weapons, sharp objects, the "3-1-1" rule on liquids, gels, and aerosols, etc.; go to the TSA Prohibited Items (http://www.tsa.gov/traveler-information/prohibited-items) web page.

Security Screening Questions? For questions on the rules for liquids in carry-on, sharp objects, weapons, tools, medicines and medical devices, food, "prohibited items," and general security screening questions, see the TSA's security rules and guidance (https://www.tsa.gov/travel) . You may also contact the TSA (https://www.tsa.gov/contact/customer-service) via phone, e-mail or Tweet.

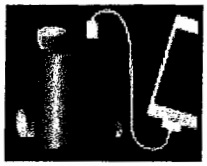
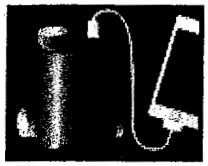
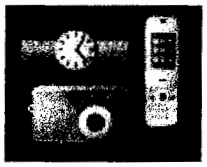
Hazmat Questions? For questions about hazardous materials (chemicals, batteries, battery-powered devices, gases, aerosols, flammables, etc.) you may contact the FAA Office of Hazardous Materials Safety via e-mail at hazmatinfo@faa.gov. Please allow 1-2 business days for answers to e-mail questions.

All **Medicinal & Toiletry** **Matches & Lighters** **Batteries & Electronics** **Assistive Devices** **Outdoors** **Misc**

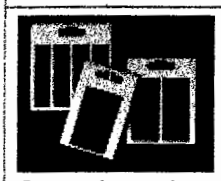
Show 10 entries Search: Batteries

Hazardous Material	Checked Bag	Carry On	
 Batteries, wet, nonspillable (more_info/?hazmat=33) Small gel cell and absorbed electrolyte batteries for portable electronics	✓	✓	Details (more_info/?hazmat=33)
 Electronic cigarettes, vaping devices (more_info/?hazmat=61) Battery-powered E-cigarettes, vaporizers, vape pens, atomizers, electronic nicotine delivery systems	✗	✓	Details (more_info/?hazmat=61)

Attachment A

Hazardous Material	Checked Bag	Carry On	
 Fuel cells containing flammable gases or water-reactive material (more_info/?hazmat=35)	✗	✓	Details (more_info/?hazmat=35)
 Fuel cells containing flammable liquid or corrosive material (more_info/?hazmat=34)	✓	✓	Details (more_info/?hazmat=34)
 Heat producing articles (more_info/?hazmat=15) Diving lamps, soldering equipment	✓	✓	Details (more_info/?hazmat=15)
 Lithium ion and lithium metal batteries, spare (uninstalled) (more_info/?hazmat=7) Rechargeable and non-rechargeable lithium batteries, cell phone batteries, laptop batteries	✗	✓	Details (more_info/?hazmat=7)
 Portable electronic devices, containing batteries (more_info/?hazmat=23) Cell phones, laptop, camera, smart phones, PDAs	! *See Details*	✓	Details (more_info/?hazmat=23)

Attachment A

Hazardous Material	Checked Bag	Carry On	
 Portable recreational vehicles powered by lithium ion batteries (more_info/?hazmat=66) Hover boards, self-balancing scooters, unicycle scooters, etc.	! *See Details*	! *Restrictions Apply*	Details (more_info/?hazmat=66)
 Spare batteries, dry cell (more_info/?hazmat=32) Alkaline, nickel metal hydride, nickel cadmium	✓	✓	Details (more_info/?hazmat=32)
 Spare fuel cells and cartridges (more_info/?hazmat=36)	✗	✓	Details (more_info/?hazmat=36)

Showing 1 to 10 of 14 entries (filtered from 66 total entries) Previous 1 2 Next

Hazardous Materials Safety Contacts (contact/)

Page last modified: July 25, 2017 9:41:27 AM EDT

This page was originally published at: https://www.faa.gov/about/initiatives/hazmat_safety/

Lithium ion and lithium metal batteries, spare (uninstal...

Rechargeable and non-rechargeable lithium batteries, cell phone batteries, laptop batteries, external batteries, portable rechargers

Size limits: Lithium metal (non-rechargeable) batteries are limited to 2 grams of lithium per battery. Lithium ion (rechargeable) batteries are limited to a rating of 100 watt hours (Wh) per battery. These limits allow for nearly all types of lithium batteries used by the average person in their electronic devices. With airline approval, passengers may also carry up to two spare larger lithium ion batteries (101-160 watt hours). This size covers the larger after-market extended-life laptop computer batteries and some larger batteries used in professional audio/visual equipment.

Quantity limits: None for most batteries – but batteries must be for use by the passenger. Batteries carried for further sale or distribution (vendor samples, etc.) are prohibited. There is a limit of two spare batteries per person for the larger lithium ion batteries described above (101-160 watt hours per battery).

Batteries must be protected from damage.

Battery terminals (usually the ends) must be protected from short circuit (i.e., the terminals must not come in contact with other metal). Methods include: leaving the batteries in their retail packaging, covering battery terminals with tape, using a battery case, using a battery sleeve in a camera bag, or putting them snugly in a plastic bag or protective pouch.

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?

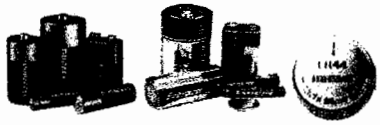
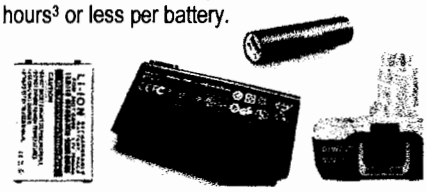
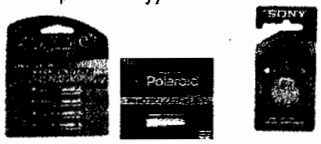
A5. When metal objects such as keys, coins, tools or other batteries come in contact with both terminals of a battery it can create a "circuit" or path for electricity to flow through. Electrical current flowing through this unprotected short circuit can cause extreme heat and sparks and even start a 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

Sep 9, 2016

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

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

[1]Note: "Checked baggage" includes carryon-bags checked at the gate or planeside. [2]Note: TSA security rules prohibit some power tools in carry-on baggage.

[3]Note: Watt hours (Wh) = Volts (V) x Amp hour (Ah) *or for milliamp hours* Wh = V x (mAh ÷ 1000)