



HSAC
Lithium Batteries and PEDs
Houston, January 17 2019

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- October 2016 IOGP meeting the subject of the Galaxy Note 7 having failures, was in the news
- Discussion on the issue of lithium batteries and some unregulated devices (e-cigarettes) took place
- Survey Monkey sent out 2016, results presented at Dallas meeting in 2017
- Draft guidance for use of PED's and carriage of Lithium Batteries presented in London – membership felt was too restrictive and lack of class 'C' cargo compartments in helicopters

2018

- EASA SID 2017-04R1 issued in December 2017 highlighted further FAA testing and found even class D and C cargo compartments would have poor chance of containing large PED (anything bigger than cell phones) with luggage
- Recommends large PEDs carried in passenger cabin, where fire can be fought
- Provides mitigating measures if large PED has to be in checked luggage

FAA

- 49 CFR 175.10 does not allow the carriage of *spare* lithium batteries in checked luggage, and does not allow for e-cigarettes and charging packs in checked luggage. Spare batteries must be protected from damage, shorting, etc
- Limited in battery size of 100Wh, no limit on quantity

EASA

- Lithium batteries are Dangerous Goods
- *Recommends*¹ you carry all PEDs in carry-on luggage
- Provides mitigating measures if large PED has to be in checked luggage

UK CAA

- similar guidance to FAA and EASA; recommends carrying lithium powered PEDs in carry luggage and restricts checked luggage from having e-cigarettes, spare batteries (but not power packs).

¹ <https://www.easa.europa.eu/easa-and-you/passengers/dangerous-goods>

- Most guidance is aimed at airline travel which have trained flight attendants with easy access to fire extinguishes, water source, smoke hoods, fire gloves and in some cases, containment bags
- Passengers and public believe access to devices is a right – difficult to change behaviors on carriage of devices
- Causes of thermal runaways and fire/explosion is less known, but testing is showing the results of these can be catastrophic, especially if amongst other flammable materials where the fire cannot be contained
- **Study of the data² reveals that the majority (>60%) of inflight events relate to power banks / charging devices**
 - Second highest cause of events is while charging a device

What causes the devices to explode?

Excessive heat caused by either: Overcharging, short or impact

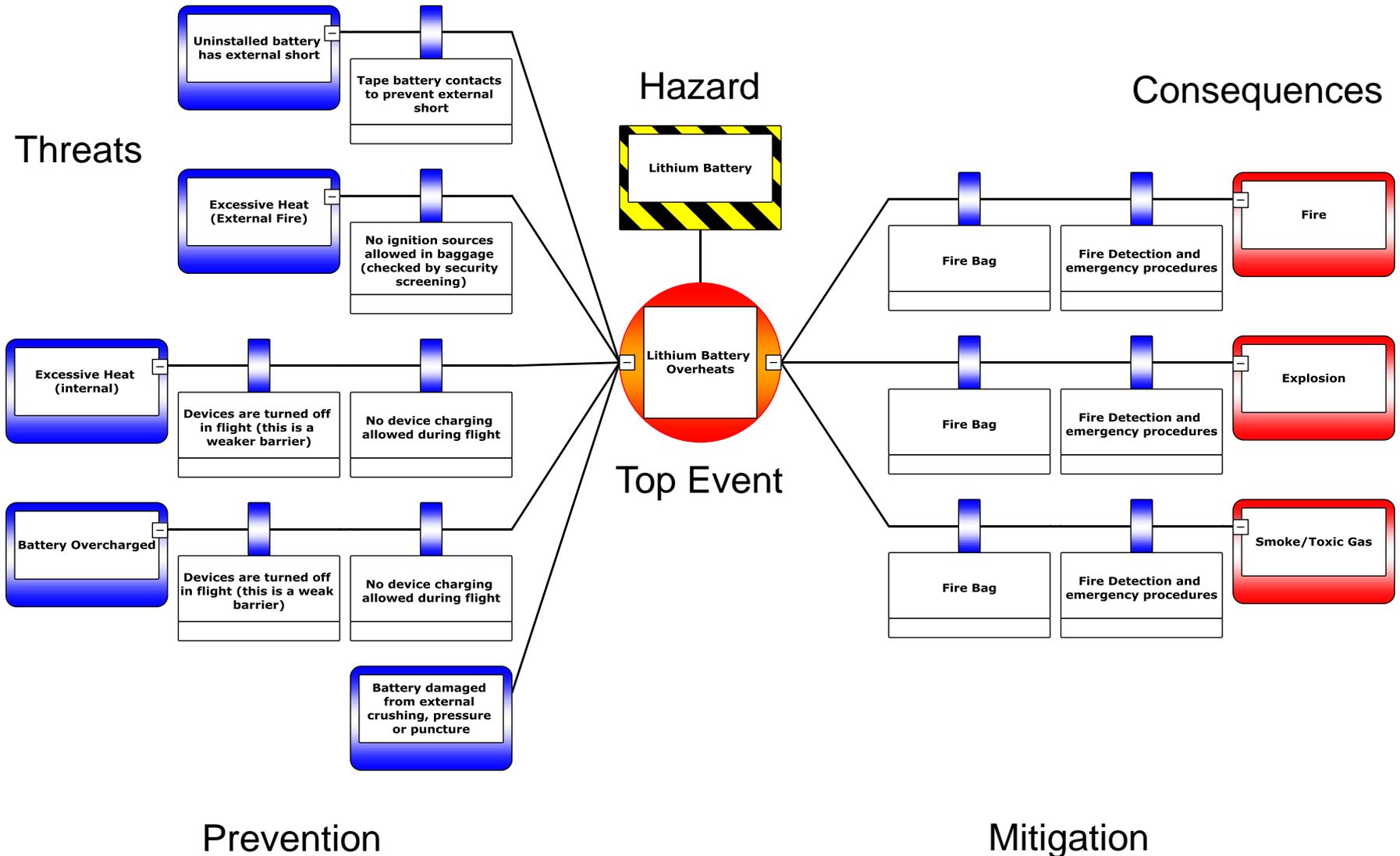
² https://www.faa.gov/about/office_org/headquarters_offices/ash/ash_programs/hazmat/aircarrier_info/media/Battery_incident_chart.pdf

Examples



Date	Source	Type of Battery	Device	Carrier	Aircraft Type	Incident Summary
7/21/2018	Airline	Li-ion	Battery charger/battery pack	Southwest	Passenger	During loading of flight 4695 from Fort Lauderdale, FL (FLL) to Dallas, TX (DAL) a bag was removed from a baggage cart and was found to be smoking and caught fire prior to being loaded on the aircraft. The checked bag contained a portable battery pack/power pack, which appeared to go into thermal runaway and burned the smaller bag it was in, as well as the contents and the duffel bag itself. There was nothing plugged into the unit and it was not protected in any way inside of the bag, i.e., no protection against external short-circuiting. No injuries or other damage was reported.
12/15/2018	Airline	Li-ion	Battery charger/battery pack	United Express / Mesa	Passenger	During the baggage off-load of United Express/Mesa Airlines flight 6080, from Houston, TX (IAH) to Detroit, MI (DTW) on December 15, 2018, a bag was found to be emitting smoke. The bag was opened by the airport police to reveal a battery charger with four batteries. The luggage was charred and the battery charger appeared to be melted.

Lithium Batteries on Helicopters



Methods to reduce excessive heat caused by overcharging, short or impact:

- 1. Do not charge devices on board**
- 2. Protect devices from damage**
- 3. Turn devices off so there is no power draw**

All of these mitigations can be achieved on our aircraft.

High risk devices, such as power banks and e-cigarettes (unregulated batteries) are already banned from some offshore helicopters and charter aircraft.

Can we agree?



Many Operators, many clients, different opinions...

Bristow

Can it Go?

What you can take with you on your offshore flights.

The carriage and movement of Personal Electronic Devices, Spare Lithium Batteries & Powerbanks is subject to both Aviation Regulation and individual client policies. For your flights, please be aware of the following:

PERSONAL ELECTRONIC DEVICES (PEDs)

Does the item have an ON/OFF Capability and can you evidence it has been switched off?

✓ YES. The item can travel in your hold luggage with the exception of your mobile phone that can be retained on your person.

✗ NO. The item cannot travel.

SPARE LITHIUM BATTERIES & POWERBANKS ARE NOT PERMITTED ON YOUR FLIGHTS

What is a 'Powerbank'? A 'Powerbank' is any item that includes an item designed solely for that purpose that can charge the device such as certain n even some wallets!

BE AWARE OF TH

HELP US TO MAINTAIN YOUR FLIGHT SAFE YOUR PERSONAL ELECTRONIC DEVICES

Restrictions on carrying Personal Electronic Devices containing Lithium Batteries

- Spare battery
 - Camera
 - Phone
 - Smart Watch
 - Tablet
 - Laptop
- Max. 6 items per person**

PEDs in bags need to be properly protected from damage (e.g. wrapped in clothing / case)

- No Switch
No Carry!
- Airplane Mode
Switched on
- Blue-tooth
Switched off
- >160Wh/2g
No Carry!

NHV

Dangerous situation? Contact the Safety Department on +32 29 31 91 75 or safety@nhv.be

Safety Alert - Aviation

Subject: rechargeable batteries in mobile phones and other mobile devices. **Fire or injury risk** with lithium-ion batteries, especially when traveling on airlines and offshore helicopters.

Purpose: To alert Hess travelers to the risks and transport requirements of lithium-ion batteries, especially when traveling on airlines and offshore helicopters.

Background: Today it is common for people to travel with several personal electronic devices (PED), many of which utilize lithium-ion batteries. The major hazard offered by lithium-ion battery technologies is the evolution of a fire, as a result of the flammability of the substances used in the battery. This hazard has gained attention in recent news events because of Samsung recall of millions of Galaxy Note 7 mobile phones where a flaw in the battery cell has resulted in fires. This event has prompted some airlines and offshore helicopter operators, to put restrictions in place to the carriage or use of these phones when taking them onboard the aircraft.

Discussion: Earlier in 2016, Corporate Aviation issued a Safety Alert (1-2016) surrounding E-cigarettes and lithium-ion batteries as an emerging safety risk in aviation, and beyond. While many of the lower quality lithium batteries found in un-regulated accessory type devices are more prone to these problems, the recent cases of fires caused by lithium-ion batteries in latest generation mobile phones, has prompted us to take steps to manage this risk in a proactive manner. A potential failure in these batteries can cause a fire and potential injury so their use and storage must be done so that they can be monitored and potential damage mitigated. If you experience a lithium-ion battery fire, keep in mind that the heat and/or fire can be effectively managed by dousing with water; it does not necessitate a Class D fire extinguisher.

Recommended Action: Hess travelers should not pack any PED (mobile phone, tablet, laptop or lithium-ion batteries (spare batteries or charging packs) in their checked luggage. It is recommended that you take these items on an aircraft in your carry-on luggage or on an offshore helicopter travel, passengers shall ensure all devices are switched off in your mobile phones are off and carried on your person. Charging of PED's on a helicopter is not permitted. Some helicopter companies retain the right to limit or restrict the carriage of devices and/or will have methods of collecting these devices to ensure safe

Hess Corporate Aviation

02/2016

Safety Alert - Aviation

Subject: Risk of fire with electronic cigarettes (e-cigarettes) in aircraft baggage.

Purpose: To alert Hess travelers to the risks of e-cigarettes and to provide guidance and inform the regulations associated with carrying these items on aircraft, including offshore helicopter transport

Background: E-cigarettes have become an aviation and beyond. These items have been attributed to many fires in aircraft baggage. Carrying these devices on offshore helicopters, as there are no in-flight fire extinguishers, is not permitted in offshore platforms, and most recently, a fire in a North Sea Offshore oil and Gas platform. Hess Aviation in coordination with EHS, restricted these devices from going offshore in the Gulf of Mexico. The flight crew was able to land safely in Lumpur. The flight crew was able to land safely in Lumpur.

Discussion: E-cigarettes and the lithium-ion batteries contained within them have become a safety concern in aviation and beyond. These items have been attributed to many fires in aircraft baggage. Carrying these devices on offshore helicopters, as there are no in-flight fire extinguishers, is not permitted in offshore platforms, and most recently, a fire in a North Sea Offshore oil and Gas platform. Hess Aviation in coordination with EHS, restricted these devices from going offshore in the Gulf of Mexico. The flight crew was able to land safely in Lumpur. The flight crew was able to land safely in Lumpur.

Recommended Action: Alert to all Hess travelers that e-cigarettes are not permitted in your checked luggage for airline travel or in luggage for offshore travel. It is recommended that if you choose to take these items on an aircraft, that you carry these devices on your person (pocket) after first removing the battery. Most airport and airport security screening devices will detect these devices in your bags. Care must be taken to properly carry these on ALL flights, and consider the safety implications of these devices.

NEW REGULATIONS FOR TRAVELING WITH E-CIG BATTERIES IN 2016

DO NOT ATTEMPT TO TRAVEL WITH OPEN OR CHARGED BATTERIES. THESE BATTERIES ARE NOT PERMITTED TO BE CARRIED IN YOUR BAGGAGE.

01/2016



ONE Solution

- For Offshore Helicopters or small aircraft not equipped with flight attendant:
 - All devices must be completely switched off
 - ***No power banks or e-cigarettes allowed on aircraft unless stored in a manner which can contain any fire or explosion***
 - No charging of electronic devices are approved aboard the aircraft
 - For EFBs, procedures must be in place to manage these devices in the cockpit
 - Consideration should be given to placing all small PEDs, at time of check-in, into a fire and explosion proof device for carriage aboard the aircraft

Should HSAC recommend best practices on this subject?