

# BATTERIES & BATTERY-POWERED DEVICES

## Aviation Incidents Involving Smoke, Fire, Extreme Heat or Explosion

As of October 9, 2012, 132 air incidents involving batteries have been recorded since March 20, 1991

Note: These are recent cargo and baggage incidents that the FAA is aware of. This should not be considered as a complete listing of all such incidents. The incident summaries included here are intended to be brief and objective. They do not represent all information the FAA has collected, nor do they include all investigative or enforcement actions taken.

| DATE/<br>SOURCE   | TYPE OF<br>BATTERY                | DEVICE<br><br>(if applicable) | AIRCRAFT<br>TYPE<br><br>(Passenger or<br>Cargo) | INCIDENT SUMMARY  |
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| Fire Chief -<br>Orlando, FL<br>International<br>Airport | Lithium-ion batteries             | N/A                           | Passenger                                       | Report from Fire Chief indicated the hands of a passenger on board a Southwest Airlines flight at the airport was burned by spare lithium batteries for a cell phone. The spare batteries were in a plastic Ziplock bag. Heat from the batteries melted the Ziplock bag, breached the surrounding carry-on bag and produced smoke and flames. |
| 07-JUNE-2012<br>DOT 5800.1<br>FormNo<br>I2012060342     | Lithium-ion batteries             | N/A                           | Cargo   | Report from United Parcel Service indicated that at its Louisville, KY facility, a package containing 18 approximately 1 ounce lithium ion batteries from 6 various manufactures melted through their plastic wrap causing the outer package to start burning.  |
| 22-MAY-1202<br>DOT 5800.1<br>FormNo<br>I2012060098      | Nickel-Metal Hydride<br>batteries | N/A                           | Cargo   | Report from Federal Express indicated that at its Guangzhou, China facility, batteries were not packaged properly and they arced resulting in a fire (NFI).   |
| 05-MAY-2012<br>DOT 5800.1<br>FormNo<br>E2012050211      | Lithium-ion battery               | N/A                           | Passenger                                       | Report from United Airlines indicated that while loading bags a ramp agent at Newark, NJ noticed two apparent batteries on the ramp that appeared to have come from a whole that burned through a piece of checked baggage that had just been loaded into an aircraft bin.  |
| 22-April2012<br>DOT 5800.1<br>FormNo<br>I201240360      | Lithium-ion battery               | N/A                           | Cargo   | Air Express International indicated that a packaged opened during the sort at its Erlanger, KY facility. The package contained 17 lithium ion batteries. As one of the batteries was being returned to the package, it shorted out and caught fire. One employee was injured and treated at the facility.                                     |

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| 17-APRIL2012<br>DOT 5800.1<br>FormNo<br>E2012050009  | Lithium-ion battery                | Personnel air purifier                 | Passenger | Report from Pinnacle Airlines indicated that a flight attendant described a shooting fire from a passenger's device at about the same time that the captain felt a small thud. Within seconds the flight crew noticed a strong burning electrical odor and the flight attendant observed a burning battery on the floor of the aisle. As trained, the flight attendant used water from the service cart to extinguish the fire almost immediately. |
| 24-MAR-2012<br>DOT 5800.1<br>FormNo<br>E2012040410   | Lithium-ion batteries              | Battery powered device                 | Cargo     | Report from Atlas Air indicated that a package caught fire at its Incheon, Korea facility. The package appeared to contain a lap top computer.   |
| 02-MAR-2012<br>DOT 5800.1<br>FormNo<br>I2012030493   | Lithium battery                    | N/A                                    | Cargo     | Report form Federal Express indicated a fire in a package at its Toluca, Mexico facility. When asked, the consignee reported that he had ordered a lithium battery for a bicycle.  |
| 25-FEB-2012<br>Air Carrier report                    | Lithium-ion batteries              | Lithium-ion battery powered surf board | Cargo     | Initial report form Federal Express indicated that a smoking unit load device was discovered at the Memphis, TN airport facility. Inspection revealed the contents of the ULD included a smoking and burning self-propelled surf board.  |
| 29-OCT-2011<br>Transportation Safety Board of Canada | Lithium-ion battery packs          | Battery packs for electronic device    | Passenger | A cargo pallet carrying lithium-ion battery packs caught fire on the ramp awaiting loading on Austrian Airlines flight AUA72 at Toronto/Lester B. Pearson Intl. Airport, Ontario, Canada.  |
| 10-OCT- 2011<br>DOT5800.1<br>FormNo<br>I2011110306   | Lithium-ion batteries              | Electronic reading device              | Passenger | Report from United Airlines indicated that the device left in a seat by a passenger began to smoke resulting in a small fire when the seat was moved back to the upright position (NFI).   |
| 30-SEPT-2011<br>DOT5800.1<br>Form                    | Lithium-polymer cells in equipment | Battery pack for remote control device | Passenger | Report from Delta Airlines indicates passenger checked in with Air Canada in YKA for flt to YVR and subsequent DL flt to SLC. During transfer at YVR, checked bag began to smolder. As DL agent lifted the bag, it burst into flames. Subsequent inspection of bag revealed it contained two large battery packs.  |
| 17-AUG-2011<br>DOT5800.1<br>FormNo<br>E2011090166    | Lithium-ion batteries              | Camera                                 | Passenger | Report from Delta Airlines indicates that a passenger, prior to a flight from Amsterdam to Detroit, was changed batteries for a camera and placed the "used" batteries in a camera bag. The batteries became hot and caused smoke. All batteries involved were left at the boarding gate before takeoff.   |
| 29-MAR-2011<br>DOT5800.1                             | Lithium ion batteries              | Battery packs for electric             | Cargo     | Initial report from Federal Express indicated that the batteries offered for shipment from   |

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| Form  |  | bicycles                |           | Kwun Tong, China to Southampton, England caught fire for an unknown reason at the facility in Tsun Wan, Hong Kong.   |
| 21-MAR-2011   | Lithium-ion batteries contained in equipment including lithium polymer batteries | Unknown                 | Cargo     | Initial report from Federal Express indicated that the package offered for shipment from Mumbai, India to Shenzhen, China was observed to be smoking by a customs official at the facility in Guangzhou, China. Subsequent indicated the package contained the batteries.  |
| 01-JAN-2011<br>DOT 5800.1<br>Form No<br>E2011020150           | Lithium-ion batteries  | MP3 player              | Passenger | Report from Delta Airlines indicated that during DL# 1036 from SLC-ATL a passenger's device became very hot and the plastic started to melt. There was no flame present. A flight attendant cooled the device with water.  |
| 6-OCT-2010<br>DOT 5800.1<br>Form and FAA<br>report            | Lithium ion battery  | N/A                     | Cargo     | Initial report from United Parcel Service indicated that an electric storage acid battery offered for air shipment from Shanghai, China was observed smoking at the facility in Cerritos, CA. Subsequent investigation by FAA indicated that the battery appeared to be an 18.5 Volt, 30Ah (555Wh) Lithium Ion Battery (Lithium Cobalt Oxide (LiCoO <sub>2</sub> )). |
| 28-AUG-2010<br>DOT 5800.1<br>Form                             | CR 123A primary lithium battery in a device                                      | Flashlight              | Cargo     | Initial report from Fed Ex indicated that the flashlight in a backpack belonging to a jumpseating crewing member caught on fire while at the gate in Memphis, TN. The report indicated that one of the flashlight batteries exhibited signs of thermal runaway causing the fire.   |
| 18-AUG-2010<br>DOT 5800.1<br>Form                             | Non-spillable, electric storage  | N/A                     | Cargo     | Initial report from United Parcel Service indicated a worker at the Ontario, CA facility noticed a smoking package offered for air shipment to Newbury Park, CA. Subsequent inspection indicated that package contained two batteries in contact and short circuiting.   |
| 24-JUNE-2010<br>DOT 5800.1<br>Form                            | Non-spillable, rechargeable, lead-acid batteries                                 | Power supply for device | Cargo     | Initial report from United Parcel Service indicated a worker at the Salt Lake City, UT facility noticed a leaking package offered for air shipment to Edmonton, Canada. Subsequent inspection indicated the package was radiating heat. It contained a battery that was arching because unprotected terminals were in contact.                                       |
| 6-MAY-2010<br>DOT 5800.1<br>Form and<br>airport<br>responders | Report indicates 2 loose CR123 lithium batteries                                 | N/A                     | Passenger | Initial report from Delta Airlines and incident response personnel indicated that while placing a checked bag on a cart at the Seattle-Tacoma International airport, a baggage handler heard a "pop" and saw a   |

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|   |   |                                  |           | flame and then smoke coming from the bag. Airport police and others responded to the incident. The terminal was evacuated. At the conclusion of the response, reports and eyewitness accounts obtained indicated the baggage remnants included the CR 123 lithium batteries.  |
| 20-APRIL-2010<br>DOT5800.1<br>Form        | Lithium-ion batteries                           | Curling Iron                     | Passenger | Initial report from American Airlines indicated that a lithium-ion battery powered curling in checked baggage may have switched to the on position in the bag room at Narita Airport, Japan after a flight. The incident caused the associated spare lithium-ion batteries in proximity to the curling iron to go into a thermal runaway condition. As a result, the bag and some contents were scorched.                                       |
| 9-FEB-2010<br>Report from Air<br>Carrier  | Lithium metal w/liquid<br>cathode battery       | N/A                              | Cargo     | Initial report from United Parcel Service Airline indicated that, subsequent to air transport from Hong Kong, during the local ground portion of the delivery, the truck driver heard a loud pop. First responders were called to the scene. One of the batteries in one of the packages in the shipment ruptured, discharged soot and dislodged other batteries in the package.  |
| 9-SEPT-2009<br>Report from Air<br>Carrier | Lithium-ion battery                             | Personal<br>Electronic<br>Device | Passenger | Initial report from American Airlines indicated that one of its company-owned batteries available for on-board use by passengers was dropped in-flight and caught fire.   |
| 25-AUG-2009<br>Report from Air<br>Carrier | Initial report indicates<br>Lithium-ion battery | GPS tracking<br>device           | Cargo     | Initial report from Federal Express indicated that a burning and smoking package was discovered at the Medford, MA facility. The package was in route to Seattle, WA. An unsuccessful attempt was made to extinguish the fire by cutting open the package and applying a fire extinguisher. The Fire Department had to be called. Subsequent inspection revealed that two of the devices heated and caused the surrounding packaging to ignite. |
| 15-AUG-2009<br>Report from Air<br>Carrier | Lithium-ion battery                             | N/A                              | Cargo     | Initial report from United Parcel Service Airline indicated that a smoldering package was noticed at its Taiwan Hub. The package was transported from Macau, China. Inspection of other packages in the same consignment indicated that similar batteries were offered without terminal protection.   |
| 14-AUG-2009<br>Report from Air            | Lithium metal batteries                         | e-cigarettes                     | Cargo     | Initial report from Federal Express indicated that upon landing at Minneapolis-St. Paul   |

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| Carrier   |  |   |           | Airport the crew was alerted to a fire by a warning light associated with a forward compartment. Upon subsequent inspection of the relevant Unit Load Device, numerous packages were discovered with smoke and fire damage.  |
| 8-AUG-2009<br>Report from Air<br>Carrier                        | Non-spillable lead-acid<br>batteries                             | N/A   | Cargo     | Initial report from United Parcel Service Airline indicated that a package that had earlier been offered for air transport was noticed as “hot to the touch” at its Louisville, KY Hub. Upon inspection it contained two batteries, one of which appeared to be short-circuited.   |
| 15-JULY-2009<br>Report from Air<br>Carrier – DOT<br>5800.1 Form | Lithium-ion cell phone<br>batteries                              | Transported<br>“loose” in<br>packages<br>without out cell<br>phones | Cargo     | Initial report from United Parcel Service Airline indicated that one of several related packages transported from Romulus, MI was discovered to be emitting smoke and smoldering in Santo Domingo, Dominican Republic. Upon inspection, package contained numerous loose lithium-ion batteries with “...no protection of the contact points...” Package documentation indicated, “used batteries – non haz”. |
| 23-JUN-2009<br>Report from Air<br>Carrier – DOT<br>5800.1 Form  | Battery Wet Filled with<br>Acid – Sealed<br>Rechargeable Battery | N/A   | Cargo     | Initial report from United Parcel Service Airline indicated that a smoking package was discovered on the ramp prior to loading at Windsor Locks, CT airport. Upon inspection, the battery was observed to have burned through the shipping box.  |
| 18-JUN-2009<br>Report from Air<br>Carrier                       | Lithium-ion  | Bicycle Power<br>Device   | Cargo     | Initial report from United Parcel Service Airline indicated that a burned package was discovered in Honolulu inside a Unit Load Device as it was being unloaded. The package was originally loaded in Philadelphia and was subsequently transported on UPS flight # 2967 from Ontario, California. DOT Form 5800.1 report to follow.   |
| 11-JUN-2009<br>Report from Air<br>Carrier                       | 18V Nickel Cadmium   | Hand held<br>Cordless<br>Power Drill<br>Battery                     | Passenger | Initial report from Southwest Airlines indicated that a checked bag was observed to be “smoking” on the airport ramp at the Manchester-Boston Regional Airport prior to loading. The bag contained a spare drill battery. A screw inside the bag had connected with the exposed battery terminals apparently causing the incident.   |
| 15-JAN-2009<br>DOT 5800.1<br>report from Air<br>Carrier         | Batteries, Wet, Non-<br>Spillable, Electric Storage              | N/A   | Cargo     | Initial report from Fed Ex indicated that, while at the Pittsburgh airport, a package made of “rice paper” fell exposing three batteries. The battery terminals came in contact with each other and began to arc. As a result sparks were observed shooting from   |

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|  |   |  |           | the package. The package was marked as non-spillable batteries as required by 49 CFR 173.159(d)(2) and ICAO TI USG-V08.   |
| 13-DEC-2008<br>DOT 5800.1<br>report from Air<br>Carrier                | Batteries, Wet, Non-<br>Spillable, Electric Storage | 20, 12 volt<br>batteries<br>connected in<br>one package<br>resting on<br>“shelves” | Cargo     | Initial report from Fed Ex indicated that, while at the Memphis hub, the package fell and the unprotected terminals came in contact with metal “shelves” inside the package. This caused the batteries to arc. As a result, the battery assembly caught fire several times. The package was marked as being in compliance with ICAO TI USG-V11.   |
| 07-SEP-2008<br><br>Report from<br>UK CAA                               | Gel type lead acid                                  | Wheelchair   | Passenger | Initial report indicated that a battery-powered wheelchair burst into flames as it was being unloaded from a passenger aircraft in Manchester, England.   |
| 08-AUG-2008  | Lithium ion/Type<br>CF623/11.1-volt                 | Dell laptop<br>computer  | Passenger | While in flight, a passenger on American Airlines flight 1539 from Washington National to Dallas Ft Worth, noticed his Dell laptop was smoking. The passenger removed the battery pack and gave it to a flight attendant. The flight attendant placed the battery in a coffee pot in the aft gallery and poured water and Sprite on it. Dell has been advised of the incident.  |
| 06-AUG-2008<br>Air carrier<br>report                                   | Lithium ion   | Electrical<br>equipment  | Cargo     | UPS Airline reports that a package containing LED lamps powered by excepted lithium ion batteries was transported on UPS#0213 on 04-AUG from Louisville, KY to Cologne, Germany. It was subsequently observed smoking in a UPS ground sort facility in Copenhagen, Denmark.   |
| 04-APR-2008  | Battery Wet, Non-<br>Spillable, UN2800              |  | Cargo     | A package was offered to UPS by Enersys Inc. in Warrensburg, MO, destined for Espoo, Finland. During the handling process in Copenhagen, Denmark, the package of Non-spillable sealed lead acid batteries erupted into flame while being loaded on a truck. The local fire brigade and bomb squad responded and have possession of the package. It was determined that the terminals consisted of bolts screwed into energized sockets. |
| 18-MAR-2008<br><br>United Airlines<br>(UALA) Pilots’<br>internet forum | “CR123A” Lithium metal                              | Flashlight   | Passenger | In Denver, a UALA employee had two flashlights that contained CR123A Lithium batteries. Flashlight used for inspection of aircraft started to dim. Flashlight was turned off and placed in storage compartment in cockpit of 757. A banging noise described like gunshots originated from the flashlight. Cap on the on/off switch blown off and became projectile. Employees hand and fingers burned when he touched the flashlight    |

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|   |  |   |              | to move it to the rear of the cockpit. Mechanic responded and safely removed the flashlight.   |
| 04-MAR-2008                                   | Lithium ion/polymer/3.7V<br>1000mAH  | Personal<br>binocular video<br>control unit       | Passenger    | An i-Theater Video Display Unit used for viewing entertainment systems was charged at home prior to United flight from Chicago to Tokyo. Control unit was in use for 2.5 hrs. during the flight. Control unit began to generate heat, caused the plastic case to swell and emitted 10" plume of sparks and debris. United Captain doused unit with water. Small area of carpet damage to aircraft and no injuries to passengers or crew. |
| 29-FEB-2008<br>TSA report                     | "C" Cells  | Make-shift<br>power unit                          | Passenger    | The make-shift power unit for a passenger's laptop computer began to smoke during pre-board security screening at Terminal 7 of the Los Angeles International Airport.   |
| 14-FEB-2008                                   | Under investigation  | Flashlight  | Passenger    | Approximately two-thirds of the 389 passengers had boarded a Northwest Airlines Tokyo-Hong Kong flight, when a passenger's carry-on bag caught fire in an overhead bin. Flight attendants put out the fire with two fire extinguishers. One passenger suffered a minor burn when he tried to put out the fire by hand. Early indications are that a battery in a small flashlight inside the bag caught fire.                            |
| 27-DEC-2007<br>Air carrier<br>incident report | Lithium metal (lithium<br>manganese dioxide)<br><br><i>House of Batteries</i><br>prototype, 15-volt, (Five<br><i>Ultralife</i> 3-volt D cells<br>connected in series). The<br>battery contained 16.65<br>grams of lithium (3.3<br>grams per cell). | SSCOR<br>medical suction<br>pump                  | Cargo        | Shipment was submitted to UPS for "2 <sup>nd</sup> day Air" service. After pick-up and ground transportation, the package "spontaneously combusted" on the conveyor at a UPS package sort facility in Cerritos, Calif. An employee put out the fire with a facility fire extinguisher.   |
| 15-DEC-2007<br>Air carrier<br>incident report | Lithium ion/polymer for<br>radio controlled model<br>helicopter  | Packed with<br>radio controlled<br>helicopter kit | Cargo flight | A package containing an R/C helicopter kit with lithium polymer batteries was being sent from Hong Kong to the Netherlands. It was discovered emitting smoke at the FedEx sort center in Frankfurt, Germany. The package was brought outside the building and the fire was extinguished.   |
| 11-DEC-2007<br>Air carrier<br>report          | Lithium ion/polymer for<br>radio controlled model<br>planes:<br>FlightPower F3A, 5350<br>mAh, 18.5 V   |   | Cargo flight | A package of lithium polymer batteries for remote control aircraft was being transported by UPS from Argentina to San Marino via Cologne, Germany. At the UPS hub in Cologne, a customs inspector cut into the box with a knife, accidentally cutting into a battery which then caught fire. The battery had a soft plastic exterior without a hard metal  |

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|  |   |  |                  | shell. A fire alarm was triggered and 400-500 people were evacuated from the facility for 35 minutes. The transport section of the accompanying MSDS stated the batteries were “non-regulated”.  |
| 30-SEP-07<br>Air carrier report  | Lithium-ion<br><i>Xiamen Powerlong</i><br>3.7v, 4000 mAh and 5200 mAh |  | Cargo flight     | After flying from Hong Kong, a Korea-bound box was emitting smoke upon offload at the FedEx Hub at Subic Bay, Philippines. No flames were seen. The box was removed from the sort. The outer-most box was an overpack containing three inner fiberboard boxes. It’s believed each of the inner boxes contained 120 lithium-ion batteries. The fire was contained to one inner box.   |
| 08-AUG-2007<br>Report from German transport officials  | Lithium polymer (ion)<br><i>Arkai</i> 11.1 Volt                       |  | Cargo flight     | The batteries traveled from Hong Kong to Frankfurt on a FedEx flight. During customs inspection, one of the 440 batteries in the package started to burn.  |
| 14-June-2007<br>Police report. FAA agent statement.  | Lithium CR123A<br>(probable lithium metal)                            | Ecoquest<br>“Fresh Air Buddy”<br>personal air purifier           | Passenger flight | While walking in the Long Beach, CA, airport terminal prior to flight, a passenger’s personal air filter worn around her neck exploded in a streak of fire. The battery was ejected at high speed across the terminal and melted the carpet where it came to rest. Passenger was uninjured but suffered scorches/burns on her clothing. A non-rechargeable lithium metal battery may have been put into a recharger before inserting it into the air purifier. |
| 5-June-2007<br>Airline report. Video from witness also posted to the internet.<br>DOT incident report # 2007070001 | Lithium ion   | Dell laptop computer   | Passenger flight | While waiting in the airport gate area, a passenger plugged his laptop computer into an electrical outlet on a column in the seating area. At some point the computer began smoking. Airline agent suggested the passenger unplug or shutoff the computer but passenger did not. The computer eventually burst into flames. Fire extinguishers were used to suppress—but not quickly extinguish—the fire.  |
| 15-May -2007 (report date)<br>NASA ASRS Report # AB 2007: 26/9-1 5/15/07 730630                                    | Lithium-ion battery pack for <i>Sony PSP</i>                          | No indication that battery was in or attached to Sony PSP device | Passenger flight | Ramp worker removed checked bag that was on fire when loading passenger aircraft. Fire department determined that the fire was caused by a battery-pack for a Sony PSP handheld video game.<br><br><i>Note: This information comes from an anonymous report via the NASA ASRS. Airline, location, persons involved and exact date are unknown.</i>   |

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| 22-MAR-2007<br>FAA report            | Two <i>Nexergy Promark</i> 15-volt, 78 AH, alkaline battery packs (30 cells each)            |  | Cargo flight     | A battery pack caught fire at the FedEx facility in Forest Park, GA. Apparently, a soldering error during manufacture contributed to a short circuit of the battery. The manufacturer has redesigned the battery and external packaging.  |
| 19-MAR-2007<br>Air carrier report    | “CR123” lithium metal<br><br><i>Reportedly; battery fragments were disposed of by crew</i>   | Possibly a camera<br><br><i>No passenger took responsibility for the battery</i> | Passenger flight | 1 ½ hours into a passenger flight from Buenos Aires to Miami a small explosion occurred in the Business Class section of the aircraft. There were sparks then a flash and smoke. Flight attendants, then the Captain, responded. Battery fragments were the only evidence found. It is suspected that the battery dropped into a seat and arced against a metal seat frame causing it to explode. The ruptured battery splattered debris on overhead bins. A fragment hit a passenger in the head burning her hair near her earlobe. Seven flight attendants were affected by smoke/fume inhalation. All refused medical treatment in Miami. One aircraft seat bottom and four seat covers were damaged and replaced. |
| 9-MAR-2007<br>Air carrier reports    | Lithium ion  | Laptop computer and power converter.   | Passenger flight | Passenger flight from Toronto to Dallas/Ft.Worth diverted to St. Louis after strong electrical burning smell in the cabin. Source was laptop being used by a passenger while plugged in to aircraft power port via power converter. Power converter reportedly heated up. Aircraft power port and laptop reportedly in normal working condition afterwards.   |
| 1-MAR-2007<br>Australia CASA report  | Lithium metal (non-rechargeable)<br><br>Twenty-four <i>Surefire</i> SF123A batteries         |  | Passenger flight | US mail package from eBay internet vendor containing the batteries was transported on a passenger flight from LAX to Sydney and caught fire at the Sydney Mail Gateway Facility.  |
| 26-Feb-07<br>FAA case # 2007NE700130 | Two 12-volt batteries  |  | Passenger flight | During checked baggage screening, TSA personnel discovered two 12-volt batteries in a passenger’s tool box, reportedly for a business demo. The battery terminals were exposed. Upon examination, one of the terminals touched the ETD table and sparked causing the screener to drop the battery. The battery landed with both terminals down and started smoking. TSA determined the batteries were not “hazmat” and the airline agreed to transport the batteries as long as the terminals were protected.   |
| 10-FEB-2007<br>Air carrier reports   | <i>Energizer</i> lithium metal 9-volt, <i>Energizer</i> lithium metal AA, and <i>IDX</i> NP- | Packed with professional audio/video equipment                                   | Passenger flight | While still climbing after takeoff from JFK, smoke began pouring from an overhead bin in the passenger cabin. Passengers alerted the flight attendants who responded. A flight  |

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|   | <p>L50S lithium ion batteries were all present.</p> <p>One <i>Energizer</i> lithium metal 9-volt was destroyed in the fire and seems most likely to be source of the fire.</p> |  |                         | <p>attendant opened the bin and saw thick black smoke and flames in the rear of the bin. As the plane returned to the airport for an emergency landing flight attendants were able to put out the fire, discharging two Halon fire extinguishers. Water was applied to some cloth embers that continued to burn after the Halon was used.</p> <p>Cockpit crew smelled some light smoke in the cockpit and donned O2 masks for approx. 20 seconds until the smoke dissipated.</p> <p>Source of fire, bag with audio-video equip was secured in a lavatory. Aircraft landed and taxied to the gate. One passenger complained of chest pains and needed assistance in exiting the aircraft.</p> <p>The fire apparently was caused by loose batteries that were packed in a bag with other audio-video equipment.</p>   |
| <p>15-Dec-2006</p> <p>Media reports and airport operations incident report.</p> | <p>One Lithium metal CR123A (probable)</p> <p><i>Passenger also purchased Lithium-ion rechargeable CR123A battery and charger for the device</i></p>                           | <p>“Fresh Air Buddy” personal air filter</p> | <p>Passenger flight</p> | <p>On a Houston-Portland passenger flight, a personal air filter, being worn on a strap around a passenger’s neck, started a fire in the cabin. The device started making hissing sounds and then emitted bright sparks/flash and a clap/bang sound. The passenger removed the device and it fell between two seat cushions where it continued to burn and smoke. Passengers dumped water on the device and then flight attendants put out the fire with a Halon fire extinguisher. The aircraft diverted to Colorado Springs. The passenger wearing the device suffered a superficial burn to his chest. Dozens of passengers were examined by EMT personnel, mainly for complaints related to inhalation of smoke and/or Halon fumes. Five or six passengers were taken to the hospital. The two fire-resistant aircraft seat cushions were replaced due to having holes burned in them.</p> <p>The airline flight attendant accidentally disposed of the battery, so a determination of what type of lithium battery (primary vs. secondary) could not be made. NTSB took possession of the device and sent to their lab for analysis. Lab analysis of the damaged device was inconclusive in determining what caused the malfunction.</p> |
| <p>14-Dec-2006</p> <p>Report from air carrier</p>                               | <p>Counterfeit CR123A, lithium metal</p>   | <p>Flashlight “Superfire WF-501B”</p>        | <p>Cargo flight</p>     | <p>During a UPS cargo flight from Sydney, Australia to Guangzhou, China, at 38,000 ft., the crew heard a loud bang. A crewmember found that his flashlight in a bag next to his</p>   |

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|   |  |                     |                  | seat was warm and had a strong odor coming from it. The flashlight was opened and there was soot/residue from burning. One of the two batteries (now determined to be counterfeit) was damaged. Earlier the crewmember had dropped the flashlight about 6 inches into his bag and heard a thump.  |
| 25-Nov-2006<br>FAA agent summary  | Nontoxic lead acid, 12-volt, VRLA industrial (Marathon M12V155FTX) |                     | Cargo flight     | A pallet of eight batteries was being shipped from Canada to Brazil. At the FedEx Memphis sort center, one of the batteries fell from the wooden skid and cracked open its housing, causing some burning/scorching.   |
| 11-Nov-2006<br>Notification by US Customs and CPSC<br>FAA case # 2007WP700045 | Lithium ion cell phone batteries                                   |                     | Cargo flight     | After being shipped by air from China to the US, some batteries were selected for inspection by US Customs. While on the desk of an import specialist, the battery started emitting sparking flames and smoke.  |
| 15-Sep-2006<br>FAA Case # 2006GL700427  | Silver oxide button cells, various sizes                           |                     | Cargo flight     | During off-loading at their Plymouth, MN facility, DHL/Airborne personnel discovered two boxes that were warm to the touch. The boxes were opened and found to contain hundreds and hundreds of button cell batteries loosely packed together in a plastic bag liner. Batteries were being shipped by a small business battery recycler that stated they thought all batteries were discharged. Tests showed many still had positive voltage.   |
| 15-Sep-2006<br>United Airlines report   | Lithium-ion laptop battery   | IBM Laptop computer | Passenger flight | Approximately 15 minutes prior to departure of a LAX-LHR transatlantic flight, the laptop computer of a passenger began to smoke. The relief pilot and purser assisted the passenger in removing the laptop from the airplane. The laptop was placed on the floor of the gate area where it continued to smoke from the battery pack area and a small flame appeared. A customer service representative discharged a fire extinguisher on the fire. The battery pack continued to smoke for an additional couple minutes with white smoke and a strong odor. The Fire Department responded and discarded the burnt battery pack. The passenger stated the laptop was an IBM that belonged to his company and had been in his possession the entire time, having original parts and never having been serviced. The passenger was reportedly not using aircraft power to operate the computer. The airplane remained in service and departed on time without the |

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|  |   |                              |                     | incident passenger.  |
| 17-Jul-2006<br>Fedex<br>Notification to<br>FAA   | <i>EaglePicher-Kokam</i><br>Lithium ion/polymer<br>(used for remote control<br>models), 122 batteries of<br>various sizes |                              | Cargo flight        | The unlabeled/marked package was discovered to have caught fire while being held in bond for customs clearance in Korea. Package had traveled to Korea in FedEx system from Vienna via Paris and Subic Bay.  |
| 15-July-2006<br>UPS report to<br>FAA<br>FAA case #<br>2006SO700328   | Two <i>North Star</i> 12-volt<br>nonspillable, 70 Ah, model<br>NSB70  |                              | Cargo flight        | A package caught fire while being unloaded from a ULD at the UPS sort facility in Louisville. Airport fire personnel responded and inside the box they found two 12-volt nonspillable batteries. The terminals were not protected and the batteries were not secured to prevent movement inside the box. The inner packaging consisted of Styrofoam peanuts and paper. The statement from the fire personnel indicated the terminals on one battery came in contact with the other, arced, then caused a fire.   |
| ??-July-2006<br>UK CAA report<br>to FAA  | Unknown   | Photographic<br>flash gun    | Passenger<br>flight | Upon arriving at home after a flight, a British Airways passenger found that his battery-powered photographic flash unit in his baggage had burnt holes in some of his clothing. Plastic housing on flash unit had also melted.  |
| 02-June-2006<br>China CAA<br>report  | Lithium ion / polymer,<br>7.4-volt; 10000 mAh   |                              | Passenger<br>flight | An Air China passenger flight from Guangzhou to Chengdu diverted takeoff due to a lithium battery fire in the cargo hold. While taxiing for departure the fire alarm for the lower deck cargo compartment activated. The Captain immediately released the fire extinguisher and the aircraft stopped taxiing. Passengers were evacuated. A burnt package containing lithium polymer batteries was discovered in the cargo hold up against the ceiling of the compartment on top of the other packages. Burn marks were visible on the ceiling. Shipment was declared as electric parts; there was no indication of lithium batteries or Dangerous Goods. No UN test report was available for the batteries. Eleven other boxes were in the shipment. |
| 15-May-2006<br>Lufthansa DG<br>Occurrence<br>Report #<br>0001/06<br>DOT incident<br>report #<br>2006060033 | Lithium-ion<br><br>(VGP-BPL2/VGP-BPS2 or<br>equivalent)   | Laptop with<br>spare battery | Passenger<br>flight | Shortly before flight departure, a burning smell was detected in the first-class cabin of a Lufthansa ORD-MUC flight. Maintenance personnel were called to check and found it was coming from hand luggage inside an overhead luggage bin above seat 2A. The flight attendants evacuated the passengers in first class and first 2 rows of coach class. Crew used extinguishers to prevent setting off what was seen as the beginning of a slow fire.  |

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|   |   |   |                  | Maintenance immediately brought the bag outside the aircraft onto the ramp where it started to catch fire. Fire dept was called to assist. Fire was eventually put out after reigniting once. Fire apparently started from the extra battery pack for a laptop which was purchased on eBay. Flight departed 1 hour 18 minutes late.  |
| 29-Mar-2006<br>DOT Incident report # 2006040159               | Lead Calcium  |   | Cargo flight     | Air package shipped from Puerto Rico to Georgia containing a battery was discovered smoking while out for Fedex delivery to final destination. The package was removed and extinguished. Consignee accepted the package.   |
| 03-MAR-2006<br>FedEx incident report                          | Lithium ion button cells, mfr. by <i>Lixing</i>   |   | Cargo flight     | US-bound package was noticed to be smoking at outbound FedEx station in Shenzhen, China. Upon inspection, the package of lithium ion batteries was discovered to be on fire.   |
| 28-FEB-2006<br>FAA case # 2006NM700106                        | Two NiCad cordless drill batteries  |   | Passenger flight | Employee had power tools in baggage. TSA observed smoke emitting from suitcase on baggage belt and pulled it off the belt. Fire dept. was notified and extinguished the fire. Bag contained two NiCad cordless drill batteries. One battery had melted. Company of traveling employee paid \$15,000 civil penalty.   |
| 23-FEB-2006<br>FAA Special Agent statement and UK CAA message | Nickel Metal Hydride (NiMH)   |   | Cargo flight     | During cargo sort operations in Memphis, FedEx personnel discovered a smoking fiberboard box. Four boxes contained 250 Nickel metal hydride batteries. Four of the batteries had short circuited. The non-spec fiberboard boxes apparently lost their structural integrity due to the weight of the batteries which were packaged loosely without proper short circuit protection. The batteries were being shipped from London to St. Louis. The UK fined the shipper a total of £2800. |
| 4-OCT-2005<br>UK CAA report                                   | Dry cell / rechargeable   | Portable drill                            | unknown          | After being unloaded from a domestic flight in England, a package caught fire due to the activation of a portable drill inside. DHL driver suffered smoke inhalation and was treated at a hospital.  |
| 14-SEP-2005<br>FAA Agent report                               | Eight large heavy-duty industrial 12-volt batteries (Specs: 1350 CCA, 245 Amp Hrs @ 20 Hrs) | Batteries in metal racks for solar panels | Cargo flight     | During loading of outbound FedEx flight in Portland, ME, a package fell off the forklift and landed upside down. Sparks and a small fire were seen immediately. The cardboard outer packaging was removed exposing eight large batteries connected to each other inside a metal frame on a wooden pallet. Terminals were all exposed. Visible burn marks were on   |

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|  |  |              |                  | two of the batteries as well as on the crossbar of the metal frame. No package marking or labels indicated batteries. Documentation indicated the shipment contained solar panels and school supplies.  |
| 18-JUL-2005<br>FAA case #<br>2005NM70017<br>5                                    | Two <i>Ryobi</i> 14.4-volt NiCad rechargeable batteries                                    |              | Passenger flight | TSA officer observed smoke coming from baggage. United and TSA personnel discovered 2 <i>Ryobi</i> 14.4-volt NiCad power tool batteries. One battery has short circuited. Company of the employee carrying batteries paid \$10,000 civil penalty.   |
| 29-JUN-2005<br>FAA case #<br>2005WP700218<br>DOT Incident report #<br>2005080470 | Lithium Ion  | Battery-pack | Cargo flight     | At UPS in Ontario, Calif., during unloading of a ULD from Shanghai, it was discovered that a fire had taken place inside the ULD. A package containing a lithium-ion battery pack was identified as the source of the fire. Upon discovery, the burnt package and its contents were cool to the touch and there was no smoldering evident.  |
| 18-MAY-2005  | 18 D-cell batteries  | Marine buoy  | Cargo flight     | A FedEx employee in Fredericksburg, VA, was injured when a package that he was loading into a ULD exploded. The package contained a marine buoy powered by a battery-pack containing 18 D-cell batteries. Apparently some of the batteries had deteriorated causing gas to build up in a sealed container. Static electricity generated by sliding the box may have been the ignition source.   |
| 25-MAR-2005<br>TSA report to<br>FAA ANE<br>FAA case #<br>2005NE700152            | Twenty-four 9-volt <i>Energizer Industrial</i> batteries                                   | None         | Passenger flight | TSA screeners discovered smoldering batteries in a passenger's checked baggage. They discovered 24 9-volt batteries, most of them packed loosely inside a cardboard box in the baggage. Only nine of the batteries had their terminals protected (with plastic caps or electrical tape). There were other loose metal objects in the box that apparently came in contact with the terminals; one metal object was visibly charred. At least one of the batteries was still hot to the touch.<br><br>Passenger paid \$1500 fine. |
| 11-FEB-2005<br>FAA incident summary<br>DOT incident report #<br>2005030047       | Lithium battery, solid cathode, manufactured by <i>Eagle Picher</i> of Surrey, BC, Canada. | None         | Cargo flight     | An undeclared package containing 18 lithium batteries caught fire while being unloaded from a conveyor belt at the FedEx facility in White Bear Lake, MN. FedEx cargo handlers report hearing a "pop" sound and then seeing the box "lifted" off the conveyor belt by the force. The shipment had flown from Los Angeles to Minneapolis and was to be trucked to Clear Lake, WI. Only one battery caught fire.  |

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| 29-OCT-2004<br>Greensboro FSDO briefing paper and media accounts               | <i>Ultralife</i> 9-volt lithium (traditional 9-volt form: rectangular with two terminals on top) | Camera equipment   | Passenger flight | Shortly after departure, the battery exploded in the hand of a cameraman traveling on the VP campaign plane of Sen. Edwards (the cameraman reportedly was in the process of changing batteries). It spewed shrapnel and ignited a fire in the seat which was extinguished by flight attendants and others. The flight crew declared an emergency and returned to Raleigh-Durham airport without further incident.   |
| 14-SEP-2004<br>FAA field agent initial report                                  | Two 12-volt, nonspillable, sealed rechargeable lead-acid batteries                               |  | Cargo flight     | One of the batteries was packaged so that its terminals were able to come into contact with metallic sensor tape that was packed with it. This resulted in a short circuit and fire discovered at the Greenville-Spartanburg FedEx facility after the flight.   |
| 04-SEP-2004<br>FAA incident summary statement                                  | Dry, Alkaline, C-cell, (four)  | Diving flashlight  | Passenger flight | Diving flashlight exploded at LAX as it was removed from checked baggage by TSA personnel during the CTX screening process. Minor injuries to nine people. The incident occurred prior to the baggage being loaded on the passenger aircraft. A 1996 NIOSH report indicates that exploding flashlights are not uncommon—particularly among airtight flashlights with old, damaged, or improperly installed batteries. One of these batteries (Exp. Date: MAR 2005) may have been improperly installed according to the FAA summary. |
| 07-AUG-2004<br>FAA incident summary statement, DOT Incident Report #2004081622 | Lithium-ion  | Lithium-ion batteries assembled together in a plastic case | Cargo flight     | Prototype lithium batteries shipped under a competent authority approval from California to Europe apparently started a fire in a ULD during the loading process at the FedEx Memphis hub. The ULD had just been loaded for a transatlantic flight (Memphis-Paris). The ULD and many other packages in it were damaged/destroyed by fire. Shipment apparently was in violation of the DOT approval allowing the prototype battery to be shipped.  |
| 28-APR-2004<br>DOT Incident report #2004050033                                 | Dry batteries  |  | Cargo flight     | While unloading a container in Dothan, AL, a FedEx ground handler smelled burning plastic. The package was located and opened. Several dry batteries inside had wires attached. Plastic bag inner packaging was melted and inside of box showed burn marks.   |
| 18-APR-2004<br>FAA incident summary  | Ni-Cad, 18-volt, rechargeable  | DeWalt cordless power drill                                | Passenger flight | A power drill with battery attached was activated in checked baggage. Drill generated heat, setting fire to the bag and other bags on the luggage cart while waiting to be loaded on to the passenger aircraft.   |

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| 01-APR-2004<br>Transport<br>Canada                                   | CR123 lithium batteries  | Flashlight   | Passenger<br>flight | A flight attendant lent a passenger a flashlight which was recently purchased in Beijing. The passenger dropped the flashlight while it was on. Later the passenger put the flashlight in a seatback pocket. A few minutes later, the flashlight began to emit smoke and noxious fumes. The flashlight became so hot it could only be handled with oven mitts. |
| 02-NOV-2003  | Ni-Cad, Ni-Metal Hydride,<br>and/or Lithium<br>(according to label on<br>computer) | Notebook<br>computer –<br>Toshiba<br>Satellite model<br># 815-S129 | Passenger<br>flight | At security screening, a passenger's bag contained a computer bearing a warning label on the bottom near the battery compartment: "Warning: Hot base may cause burn. Avoid prolonged contact with bare skin." Battery compartment was hot. Screener had passenger turn off computer.   |
| 25-OCT-2003<br>FAA incident<br>summary                               | <i>PowerSonic</i> Nonspillable,<br>Lead Acid gel-cell, 12-<br>volt, 35 AMP hours   | Powered hand<br>truck  | Passenger<br>flight | Powered hand truck shipped as cargo accidentally switched on. Motor and battery generated heat and smoke in cargo compartment of the pax aircraft forcing it to return to gate.  |
| 01-AUG-2003<br>FAA #<br>2003NE700110                                 | <i>Sanyo</i> six nickel metal<br>hydride battery pack                              |  | Cargo flight        | Battery pack self-ignited and burned while in transit at the UPS facility in Brewer, Maine. Medical instrument vendor had sent a replacement battery pack to the shipper with written instructions to return the battery pack they were using which had been recalled because of potential problems with it overheating after charging.                        |
| 09-JUN-2003  | Ni-Cad, 18-volt,<br>rechargeable   | Battery for<br>DeWalt<br>cordless drill –<br>unattached            | Passenger<br>flight | As part of routine baggage screening it was noticed that the battery, packed loosely in a toolbox, was hot. The unattached drill battery with unprotected terminals had come in contact with metal objects in the toolbox.   |
| 04-JUN-2003<br>DOT Incident<br>report #<br>2003060805                | Non-spillable batteries  | None   | Cargo flight        | Package burst into flames at FedEx sort facility. Terminals not protected from short circuit, arced and started fire.  |
| 16 FEB-2003<br>Civil Aviation<br>Safety<br>Authority of<br>Australia | Non-spillable, sealed, lead-<br>acid   | Wheelchair   | Passenger<br>flight | Upon unloading Virgin Blue flight # DJ621 from Launceston to Melbourne, Australia staff noticed the arching wheelchair battery. A pre-existing fault in an attached electrical cord appeared to be a contributing factor, but it was not possible to prove exactly what caused the short circuit.  |
| 12-AUG-2002<br>DOT Incident<br>report<br>#2002090134                 | Lithium battery (excepted)   | Samsung mini<br>computer (palm<br>pilot)                           | Cargo flight        | Burning odor detected by handlers at the Los Angeles FedEx inbound package sort center. Battery apparently short-circuited causing the bubble wrap in the package to burn and melt onto the unit.  |

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| 12-APR-2002<br>DOT Incident report #2002050519                            | Lithium batteries  | None   | Cargo flight     | Lithium batteries shipped under exception by Abbott Labs did not have terminals protected from short circuit. Started fire inside package at FedEx Indy sort facility.  |
| 25-MAR-2002   | <i>Hawker Cyclon</i> , sealed lead, rechargeable, nonspillable batteries | <i>Cyclon</i> batteries contained in larger battery: <i>Lucent/Hawker</i> , sealed lead, rechargeable, 45-volt, 2.5-Amp Hour | Cargo flight     | After the initial flight, the package containing the battery/batteries caught fire at the FedEx sort facility in Memphis.   |
| 09-MAY-2001<br>DOT Incident report #2001061356                            | Wet acid batteries, nonspillable, two 6-pound batteries                  |  | Cargo flight     | Shipment was being unloaded from of inbound aircraft when handlers noticed fumes and smoke. Package was located and had a burn hole on its side. Batteries apparently short-circuited.  |
| 26-FEB-2001   | Wet nonspillable battery   | Portable welder  | Cargo flight     | After air transport and in route to final destination, UPS truck driver observed smoke coming from the trailer. Package had been undeclared.  |
| 03-NOV-2000<br>FAA EIR # 2001NM710044<br>DOT incident report # 2000110896 | <i>Hawker</i> lithium sulphur dioxide batteries                          | None   | Cargo flight     | While in route by road to the FedEx Cargo facility in Portland, OR, a lithium battery shorted and ruptured, burning its packaging. The shorted battery had long flexible protruding positive and negative terminals. Two FedEx drivers were treated at a hospital after inhaling fumes from the incident. |
| 25-OCT-2000<br>DOT Incident report #20010043                              | <i>Hawker Cyclon</i> , 2-volt, nonspillable                              | None   | Cargo flight     | Eleven batteries (approx. D-size), with positive and negative terminals on the same end were packed loosely in a box. They shorted and caught their packaging on fire. Discovered at FedEx cargo sort center in Ft. Worth after first flight.   |
| 07-SEP-2000<br>DOT Incident report #2000091202                            | Rechargeable sealed lead acid battery                                    | None   | Cargo flight     | Handlers at Fedex outbound center in Raleigh, NC, noticed the package had an odor. Package was opened. Discovered slight smoke and two battery wires that had melted.   |
| 23-JUL-2000<br>DOT Incident report  | Nonspillable wet batteries   | None   | Cargo flight     | One package discovered leaking; another displayed evidence of electrical shorting. Outer packaging marked "Batteries, wet, nonspillable"  |
| 21-JUL-2000   | Four AA or AAA batteries   | None   | Passenger flight | During unloading of checked baggage off flight from Miami to Ecuador, handlers discovered a bag containing several battery-powered gifts destroyed by fire started by pack of small batteries. Bag also contained   |

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|  |  |  |                  | broken bottle of cologne.   |
| 06-JUL-2000<br>DOT Incident report                                       | 20 nonspillable lead acid batteries  | Cables attached to terminals; related power supply equipment | Cargo flight     | Ramp personnel handling the shipment noticed that several of the batteries were sparking or arcing while being moved and that the terminals on the batteries were not sealed properly. Subsequently discovered that some of the cables normally interconnecting batteries still attached to terminals. Also, related equipment, switching panel and controller placed directly on top of batteries. Outer package marked "12-volt BAT-0048 Sealed, no maintenance rechargeable battery for UPS applications." |
| 11-FEB-2000<br>ANM EIR# 2000NM-710146<br>DOT Incident report # 200002135 | Two <i>PowerSonic</i> , sealed rechargeable, lead acid batteries, 12-volt, 7 Amp Hr. |  | Cargo flight     | Ramp workers noticed a burning smell emanating from a box after aircraft unloaded. Employees opened box and discovered two sealed lead acid batteries packed together without protection from short circuiting. Terminals of both batteries were partially melted and scorch marked. Battery cases were significantly warped and cases bubbled.   |
| 26-JAN-2000<br>DOT Incident Report #2000021369                           | Eight nonspillable wet batteries   | None   | Cargo flight     | Package broke open in cargo facility. Two batteries shorting when discovered. Little post on battery described as practically burned off. Paper packing material had black scorched spots. Terminals not protected against short circuits.  |
| 17-DEC-1999<br>DOT Incident Report # 2000010495                          | Four auto-sized batteries  | Uninterruptible power source (UPS)                           | Passenger flight | Four automotive-size batteries inside the metal cabinet, wired in sequence by battery cables. Appears batteries not adequately secured within cabinet, shifted during handling and appear to have shorted out against the metal cabinet, causing burning. Outer container, a fiberboard box on a skid, showed signs of burning.   |
| 12-SEP-1999<br>DOT Incident report                                       | Nonspillable battery (non-regulated or undeclared)                                   | None   | Cargo flight     | Box found smoking during sort process. Battery had its posts bent inside the box. Posts allegedly came into contact with the metal slide in the sort, allowing the arc to occur and resulting in fire.  |
| 12-SEP-1999<br>DOT Incident report # 19990913126                         | Nonspillable batteries (undeclared)  | None   | Cargo flight     | During unloading of FedEx ULD in Denver, box discovered allegedly emitting smoke. Report indicates box containing 2 rechargeable, lead-acid batteries caught on fire.   |
| 31-AUG-1999<br>DOT Incident Report #                                     | Nonspillable battery (undeclared)  | None   | Cargo flight     | During outbound package sort, battery apparently initiated and caught fire. There were holes burned completely through the fiberboard box closures.   |

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| 1999091333<br>and FAA<br>1999EA-<br>610653   |  |                              |                     |  |
| 24-AUG-1999<br><br>Taiwan<br>Aviation safety<br>Council report<br># ASC-AAR-<br>00-11-001<br>Accident<br>Investigation<br>Report | 12v motorcycle battery                                       |                              | Passenger<br>flight | UNI Air passenger flight from Taipei to Hualien. Upon landing there was explosion then smoke and fire in the forward part of the passenger cabin. Investigators found that a motorcycle battery and container of gasoline had been brought into the passenger cabin. It is believed the gasoline leaked from its unmarked plastic bottle onto the battery causing a short circuit and fire. The aircraft was destroyed by fire. 14 passengers suffered critical injuries, 14 passengers suffered minor injuries. |
| 24-JUL-1999<br><br>DOT Incident<br>Report #<br>#1999081536   | 12-volt battery  | Connected to a<br>phone jack | Passenger<br>flight | America West ramp agents noticed smoke coming from a piece of luggage that was on the belt loader (transferring from inbound flight to outbound flight). Bag was removed and firefighters called. There was visible melting and charring of a wire connected to the negative terminal of the battery.  |
| 07-JUN-1999<br><br>DOT Incident<br>Report  | “Non-regulated” batteries.<br>Actual type unknown.           | None                         | Cargo flight        | Package noticed during FedEx operation in Greensboro, NC to have burning smell. Inner batteries apparently arced causing batteries to burn inside the package. Incident report stated batteries had not been packaged correctly.   |
| JUN-1999<br><br>NASA ASRS<br>Report  | Camcorder battery  | Possibly<br>Camcorder        | Passenger<br>flight | During ground maintenance delay, flight attendant noticed burning smell. Passengers deplaned. Overhead bin opened to reveal smoke from a passenger bag. Upon opening, cloth items discovered to be smoldering, and a camcorder battery in the bag was extremely hot.   |
| 04-JUN-1999<br><br>FAA AEU and<br>FAA AEA<br>msgs  | Dry cell batteries   | None                         | Cargo flight        | U.S. cargo air carrier transported shipment containing batteries and gas cartridges to foreign destination. Fire broke out as cargo being offloaded and smoking pallet discovered. Examination of the pallet revealed steel rods placed on top of the dry batteries loosely piled on the pallet.   |
| 28-APR-1999<br><br>AWP report/<br>NTSB Rec.<br>A-99-85   | Primary Lithium batteries,<br><i>Sanyo</i> CR2<br>(excepted) | None                         | Passenger<br>flight | 120,000 lithium batteries were being shipped on two pallets. After being unloaded from a passenger flight from Japan, a cargo employee at LAX mishandled one of the two pallets causing lithium batteries to dislodge from their packaging. The pallet later caught on fire along with the second pallet which it was placed next to. Initial attempts to extinguish   |

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|  |  |  |  | the blaze using water/chemical fire extinguishers failed.   |
| 10-OCT-1998<br>FAA AAL<br>Special Agent<br>statement                       | Unknown  | 336 laptop<br>computers                            | Cargo flight                                     | Fire warning diverted cargo aircraft. Captain/flight engineer inspected cargo area. Both noted heat rising between pallets on jet flat, as well as strange odor and lung irritation. Fire fighters sprayed pallet with retardant. No further evidence of heat exposure or fire.   |
| 03-OCT-1998<br>DOT Incident<br>Report #<br>1998100548                      | Nickel cadmium batteries                       | None   | Cargo flight                                     | Two batteries somehow arced and short-circuited. This malfunction started a fire inside the box. The fire self-extinguished.  |
| 07-JUL-1998<br>Rapid City SD<br>Incident Report<br>98-002106               | 9-volt battery                                 | Baby Monitor<br>Remote                             | Passenger<br>flight                              | Fire damaged bag discovered during unloading. Carrier employee noted fire odor and checked bag felt warm. Fire appeared to have been caused by a short in the monitor remote, possibly because of close proximity to luggage frame.   |
| 19-MAY-1998<br>DOT Incident<br>Report #<br>1998071744                      | Wet acid battery                               |  | Cargo flight                                     | Sort center employee smelled unusual odor coming from container during unloading. A 70-lb package singled out and opened by emergency responder. Fanny pack burned and corroded, hot and smelled of fumes.  |
| 19-MAY-1998<br>FAA<br>#EA19980082  | Unspecified batteries                          | Uninterruptible<br>power supply<br>(UPS) units (2) | Cargo at<br>IAC<br>warehouse                     | One of the UPS units exploded during offloading of a truck.   |
| 12-MAR-1998  | Wet batteries                                  | Engines  |  | Ramp agent at Miami Int'l airport noticed flames and smoke coming from one of the pallets during unloading after a flight from the Netherlands. One of the engine batteries was not protected and had come into contact with a steel cable causing the cable to spark and burn.   |
| 25-NOV-1997<br>FAA ASW<br>investigation<br><br>FAA press<br>release 9/9/98 | Nonspillable wet electric<br>storage batteries | None   | Intended as<br>cargo on<br>passenger<br>aircraft | Courier company dispatched driver to pick up package consignment consisting of global positioning system-based survey equipment. Package self-ignited, smoked and burst into flames. An entire CO2 chemical extinguisher could not extinguish the fire, so firefighters applied dry chemical extinguisher. The FAA, NASA and the city arson bureau analyzed the fire and determined that it was caused by cables placed directly on top of battery. |
| 13-NOV-1997<br>FAA ASO   | Nonspillable wet batteries                     | UPS  | Cargo flight                                     | During cargo sort operation, this shipment was discovered burning. The device consisted of a battery with associated circuitry. A   |

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| Investigation # 98S0730067                                       |   |                               |                  | subsequent failure analysis report revealed that the burning initiated in a printed circuit board, with the battery acting as the source of energy.  |
| 15-MAY-1997<br>FAA AEA security summary<br>BUF-97-017            | Dry cell batteries  | None                          | Cargo flight     | As cargo being offloaded from aircraft, ramp employee noticed open, empty box in cargo bin. Then the employee noted four batteries on floor, which sparked as she attempted to pick them up.   |
| 28-JAN-1997<br>FAA AEA # 97EA710078                              | Nonspillable batteries (16)                                       | Battery backup cabinet (UPS?) | Passenger flight | 16 nonspillable batteries were part of an extended battery cabinet used as backup power for computers. The air cargo package ignited while being delivered after transport aboard a passenger aircraft.  |
| 26-SEP-1996<br>DOT Incident report #1996110343                   | Lithium batteries   | None                          | Cargo flight     | Eight lithium batteries were connected in a series and packed with bubble wrap inside a plastic express envelope. There were exposed connections on one end and loose wires on the other end. The batteries were not secured from movement within the package and a short-circuit resulted causing the packaging to burn. Burnt package discovered at Airborne sort center after first flight and prior to trans-Pacific cargo flight.   |
| 09-JUN-1996<br>DOT Incident Report # 960700024                   | Nickel cadmium battery  | Power pack belt, lamp         | Passenger flight | One of three passenger checked bags discovered smoldering and burning in air carrier baggage make-up area. During bag handling, power pack belt had button pushed into "on" position, causing high intensity lamp in bag to power up. Heat from lamp set bag on fire.  |
| 19-MAR-1996<br>DOT Incident Report # 960401424                   | <i>Hawker Cyclon</i> , sealed-lead rechargeable batteries. (1000) | None                          | Cargo flight     | Fiberboard box top came unsealed. Box contained rechargeable batteries. Terminals on loose batteries connected, causing them to arc, catching the box on fire and igniting surrounding freight. This box was one of ten pieces in the shipment. Other boxes were located and loose batteries repacked prior to movement to hazmat area. Each box contained two layers of 50 batteries each. Inner packagings consisted of batteries separated by cardboard dividers with layer of styrofoam sheeting across the top. Packaging tape on outer box failed. |
| 20-FEB-1996<br>FAA ASO investigation<br>FAA press release 3/3/98 | Lawn-mower batteries (declared)                                   | Lawnmower                     | Cargo flight     | Shipment consisting of 106 boxes (each containing a battery-powered lawn mower) was offered for transport to various destinations. Air carrier employees discovered smoke coming from one box. Lawn mower battery had become dislodged and shorted out, causing the mower's wires,   |

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|  |   |                                  |   | plastic housing and battery to burn/melt. Subsequent recall of all boxes revealed that more than 50 of the batteries had short-circuited and several had burned enough to char the boxes in which they were being shipped.  |
| 07-FEB-1996<br>DOT Incident Report # 19960300554               | Wet acid batteries (undeclared)   | None                             | Cargo flight                                  | Package failure caused battery terminals to come into contact with metal slide, resulting in short circuit and sparks/fire. Heat generated melted the batteries.  |
| 18-NOV-1995<br>DOT Incident Report #1995120471                 | Wet cell battery  | Removed from electric wheelchair | Passenger flight                              | Wet cell batteries were removed from passenger's wheelchair and packaged separately by airline staff. Battery cables were left attached to battery causing a short-circuit during air transportation. This melted the plastic bag inner packaging. Overheated battery then boiled over, releasing acid which was mostly absorbed by the absorbent packaging material but reached the outer fiberboard box packaging.  |
| 08-MAY-1994<br>UK CAA DG Occurrence Report Database (G. Leach) | <i>Duracell</i> lithium batteries (excepted from ICAO regulation by SP A45) | None                             | Intended to go as cargo on passenger aircraft | Consignment of lithium batteries found emitting smoke in ULD during truck transport to LHR. Fire damage. Batteries were smaller in diameter than a dime and about 5 mm high. They had been tossed loosely into a box. Positive and negative terminals had "tails" which were prone to short circuiting. The shipper was prosecuted by the UK CAA for failure to comply with Special Provision A45 of the ICAO Technical Instructions and fined £1200 with £300 costs. |
| 20-MAR-1991<br>DOT Incident Report # 910404294                 | Nonspillable battery  | None                             | Cargo flight                                  | During air transportation, a package containing a nonspillable battery was discovered smoking in the upper deck cargo area. Aircraft rerouted for emergency landing.  |