



U.S. Fire Administration
Working for a fire-safe America

Electronic Cigarette Fires and Explosions in the United States 2009 - 2016

July 2017



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U.S. Fire Administration
Working for a fire-safe America

Electronic Cigarette Fires and Explosions in the United States 2009 - 2016

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Key points

- The combination of an electronic cigarette and a lithium-ion battery is a new and unique hazard. There is no analogy among consumer products to the risk of a severe, acute injury presented by an e-cigarette.
- Fires or explosions caused by the batteries used in electronic cigarette are uncommon; however the consequences can be devastating and life-altering for the victims.
- It is likely that the number of incidents and injuries will continue to increase.
- Since the current generation of lithium-ion batteries is the root cause of these incidents, it is clear that these batteries are not a safe source of energy for these devices.
- Between January 2009 and December 31, 2016, 195 separate incidents of explosion and fire involving an electronic cigarette were reported by the U.S. media. These incidents resulted in 133 acute injuries. Of these injuries, 38 (29 percent) were severe.
- To date, there have been no deaths in the United States caused by electronic cigarette fires or explosions.
- One hundred and twenty-one (62 percent) of the incidents of explosion and fire involving an electronic cigarette or its battery occurred when the device was either in a pocket or actively in use.
- The shape and construction of electronic cigarettes can make them (more likely than other products with lithium-ion batteries) behave like “flaming rockets” when a battery fails.
- Lithium-ion batteries must be charged in accordance with the manufacturer’s instructions.

Updated report

This report is an update to the report “Electronic Cigarette Fires and Explosions” published by the U.S. Fire Administration (USFA) in October 2014. Data on electronic cigarette incidents that occurred in the U.S. between September 2014 and December 2016 have been added to the data reported in the previous report for this analysis. Any additional incidents that occurred prior to September 2014 and discovered during this literature survey were included in the data reported herein.

A considerable number of incidents and severe injuries is reported, as well as the revelation of a previously unrecognized hazardous condition — electronic cigarette and battery explosions in pockets.

What is an e-cigarette

The term “electronic cigarette” encompasses a whole class of devices with many different shapes and configurations. In this report, the term “e-cigarette” will be used generically to refer to any or all e-cigarettes, e-cigs, personal vaporizers (PVs), electronic nicotine delivery systems (ENDS), mods, or similar devices.

E-cigarettes are battery-powered devices which simulate tobacco smoking by producing a heated vapor that resembles smoke. These devices have become very popular as an alternative to smoking, including with a growing number of individuals who have never been smokers, but who enjoy the many flavors and/or the experience of using e-cigarettes.

Development

E-cigarettes were first patented in 2003, and have been available for sale in the U.S. since 2007. E-cigs have been rapidly growing in popularity as the number and selection of products expand at an extremely rapid pace. Zhu, et. al. (2014) report that by January 2014, there were 466 brands of e-cigarettes and 7,764 unique flavors available for sale. They also state that the number of products has been increasing at a rate of 10.5 brands and 242 new flavors per month. StatisticBrain¹ reports that there were 2,750,000 e-cigarette smokers in America and sales of e-cigarette devices and accessories in America exceeded \$2.8 billion in 2015. Indicators point to continued dynamic growth in the industry.

What do they look like? How much do they cost?

E-cigarette designs vary greatly. Some resemble a traditional cigarette, cigar or pipe, while others resemble a flashlight, or a small pack of cigarettes with a protruding tube. Cell phone cases with built-in e-cigarettes are also available. Figure 1 shows three common, commercially available devices.

Prices for the devices range from \$30 to over \$300, with a corresponding range in battery size, liquid capacity, and vapor output. The most basic device is an electronic cigarette, which looks like a traditional cigarette. Moving up the line, devices designed to make larger quantities of vapor are often called PVs or mods. Users can purchase a wide variety of commercially available devices or can make their own. Homemade vaporizers and e-liquids are common.

Figure 1. Three of the many e-cigarette styles available.

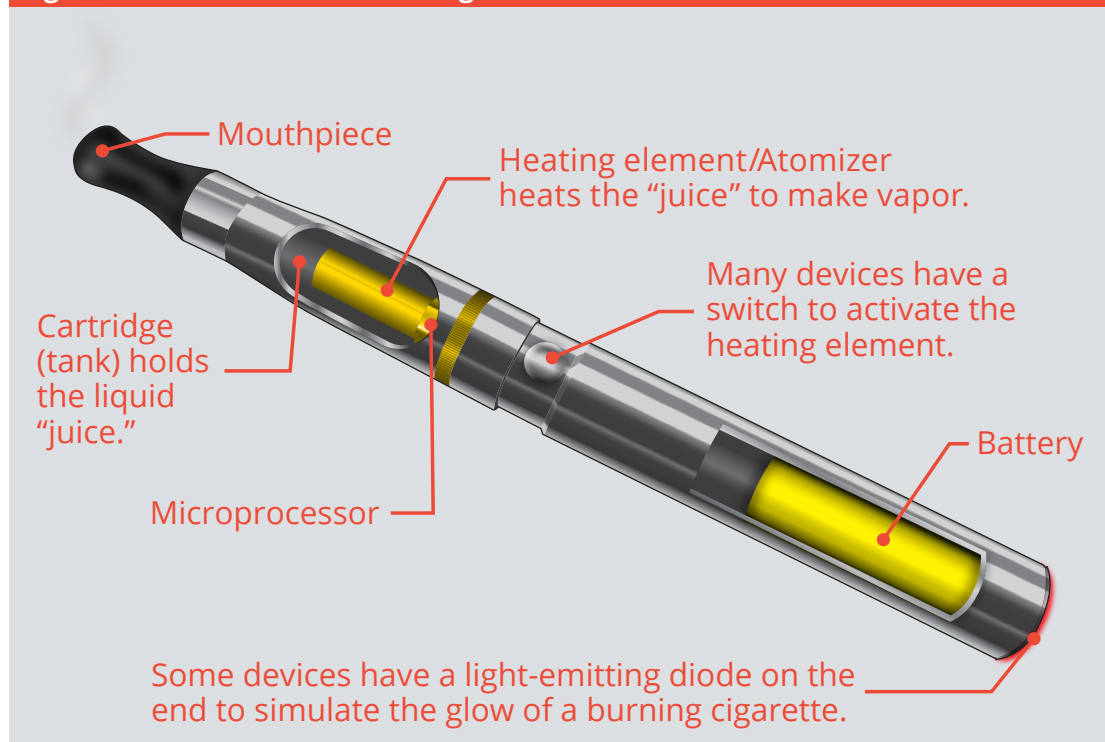


¹<http://www.statisticbrain.com/electronic-cigarette-statistics>

How do they work?

The devices have an electric heating element (an atomizer or cartomizer) to vaporize a liquid solution. Solutions (also called juice) usually contain a mixture of propylene glycol (increases flavor), vegetable glycerin (increases vapor), nicotine, and flavorings. Some juices provide flavored vapor without nicotine. Figure 2 shows the principal parts that are found in every e-cigarette or vaporizer.

Figure 2. Parts of an electronic cigarette.



"Automatic" e-cigarettes activate the heating coil when a user takes a drag from the device. Manual e-cigarettes have a switch that the user depresses to energize the heating element to make the heated vapor. Most manufactured devices have built-in timeout features that prevent overheating, and many have locking features to prevent the switch from being activated in a pocket or purse. An LED light to simulate cigarette glow on the end is present in some e-cigarettes, but is not common in PVs or mods.

Alternate uses

E-cigarettes are sometimes used to smoke hash oil or "honey oil", a cannabis product derived by separating the resins from marijuana. Separating hash oil from marijuana is a hazardous process, sometimes done illegally in hotels and homes. First responders should be aware that this practice exists and the hazards that it presents.²

²For more information see: <http://www.rmhidta.org/default.aspx/MenuItemID/691/MenuGroup/RMHIDTAHome.htm>.



Health and safety

The health effects of the vapor and the danger of nicotine overdose by ingestion or dermal contact with the juice are the subject of ongoing review by various agencies (Cressey, 2014, World Health Organization (WHO), 2014). The regulatory situation related to e-cigarettes varies by jurisdiction and is rapidly changing. At the time of publication of this report, the following facts were known:

- ❶ On May 10, 2016, the U.S. Food and Drug Administration (FDA) issued a final rule that brought e-cigarettes under the FDA's tobacco product authority. With this rule making, FDA now regulates the manufacture, import, packaging, labeling, advertising, promotion, sale, and distribution of e-cigarettes. At the time this report was prepared, the FDA had extended the compliance deadline until August 10, 2017.
- ❷ The WHO has proposed that member states adopt stringent controls on e-cigarettes (2014). The proposal is limited to the potential health effects of e-cigarettes, and does not include language addressing the electronics.
- ❸ American Nonsmoker's Rights Foundation (2017) reports that 12 states and 615 local jurisdictions have laws restricting e-cigarette use in smoke-free venues; 15 states and 503 local jurisdictions have laws that restrict e-cigarette use in other venues.
- ❹ Underwriters Laboratories (UL) has developed standards that relate to lithium-ion battery safety. These standards are applied to products containing batteries that undergo UL safety testing. In early 2017, UL promulgated UL Standard 8139, Electrical Systems of Electronic Cigarettes, which evaluates only the battery and electrical controls of an electronic cigarette.
- ❺ No current regulation, code, or law applies to the safety of the electronics or batteries in e-cigarettes. While many consumer products are required to be tested by a Nationally Recognized Test Laboratory, such as UL, there are no requirements that e-cigarettes be subjected to product safety testing. The FDA is considering regulations of the battery or electronics used in/with the devices (FDA, 2014; Ledford, 2014).

Methodology

Why did we look at e-cigarettes?

A number of explosions and fires have been attributed to e-cigarettes, causing some concern within the fire service community. We conducted this review to gather information to inform first responders and other interested parties about the scope and nature of the problem.

Data sources

Authoritative data on the occurrence of e-cigarette fires and explosions is not easy to find. The National Fire Incident Reporting System (NFIRS) does not include specific data fields on e-cigarettes that will permit the typical analysis of the frequency or impact of these incidents. Concurrent with the publication of the 2014 edition of this report, the USFA issued an advisory on how to code an e-cigarette incident in an NFIRS report³. The data cited in this report includes e-cigarette incidents reported in the NFIRS.

³USFA, NFIRSGram: Coding an electronic cigarette fire, https://www.usfa.fema.gov/data/nfirs/support/nfirgrams/nfirsgm_electronic_cigarettes.html.



It has been recognized that many fires are never reported to the fire department. Fires that self-extinguish, or those that are easily extinguished by persons nearby, are frequently not reported. The 2014 report showed that the majority of e-cigarette fires fall into this category of self- or easily-extinguished. As such, few are reported in the NFIRS database.

As was done in the previous study, media reports were used to collect information on e-cigarette incidents. The internet was searched using a variety of relevant terms and multiple search engines to locate media reports on incidents of interest. Incidents were logged, and the reports were carefully reviewed to eliminate duplicate reports and to extract data of interest. Due to the newsworthy nature of the more severe incidents, there were often multiple reports on a single incident, with occasionally conflicting information. Every effort was made to eliminate duplication and redundancy.

There may be other data sources that could shed additional light on the topic. Data from emergency-room visits and/or hospital admissions could be informative. Similarly, we are aware of emergency medical system databases that could be mined for relevant data. Due to time constraints and other factors, these data sources were not queried for the present analysis.

In light of these constraints on the availability of data, and in light of the quality of that data, the information presented herein is qualitative rather than quantitative. Readers are advised to use the results appropriately.

Findings

Overview

Reports of 195 separate e-cigarette fire and explosion incidents in the U.S. were found, dating from January 2009 to Dec 31, 2016. In 68 percent of these incidents, 133 acute injuries were reported. No deaths were reported during the study period. A summary spreadsheet of the incidents reported is included in Appendix 2 for reference.

Figure 3. Status of e-cigarette when the incident occurred

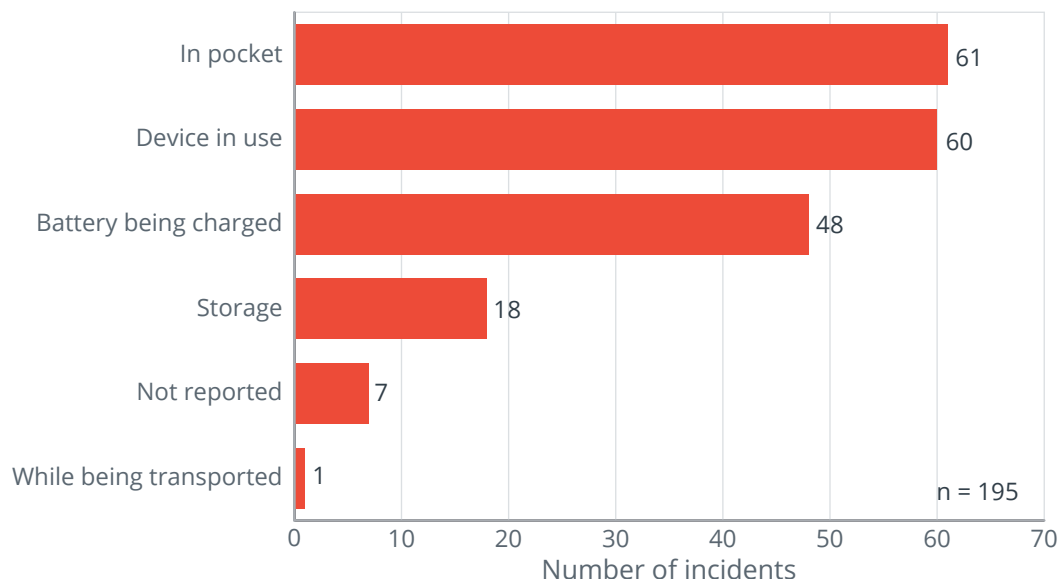




Figure 3 shows the status of the e-cigarettes at the time the incidents occurred.

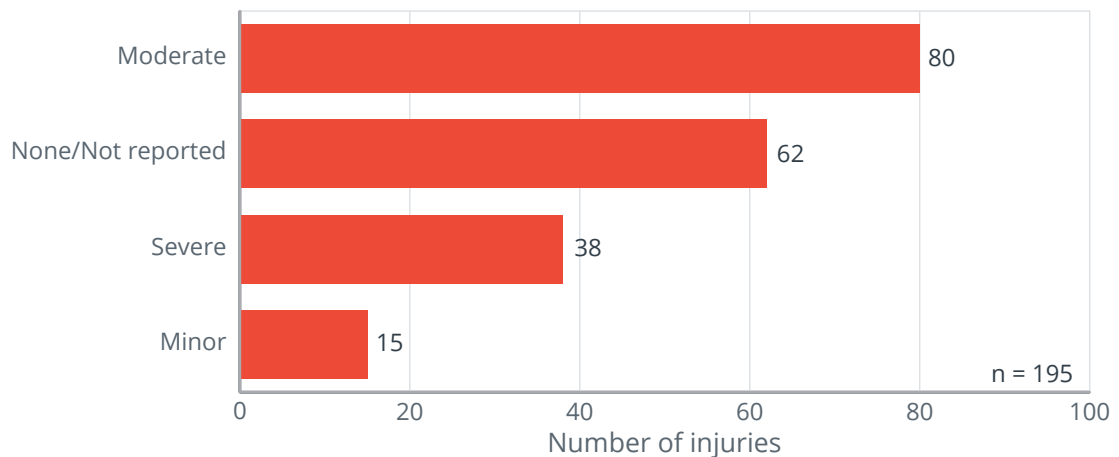
- ❖ Sixty-one incidents occurred when either the device or spare batteries for the device were in a pocket.
- ❖ Sixty incidents occurred while the device was being used.
- ❖ Forty-eight incidents occurred while the battery in the device was being charged.
- ❖ Eighteen incidents occurred while the device or battery was stored.
- ❖ In seven incidents, it is not reported whether the e-cigarette was in use, stored, or being charged.
- ❖ One incident occurred during transportation on a cargo aircraft.

Media reports generally characterize these incidents as explosions. While there is generally a brief period of overheating and off-gassing at the onset of the event, the events tend to occur suddenly, and are accompanied by loud noise, a flash of light, smoke, flames, and often vigorous ejection of the battery and other parts. A number of the media reports state that the battery or other components of the device were ejected under pressure and “flew across the room,” often igniting combustible items where they landed.

Injuries

In 133 (68 percent) of the reported fire and explosion incidents involving e-cigarettes, a single individual was injured.³⁴ Figure 4 illustrates the number and severity of injuries in e-cigarette fires and explosions.

Figure 4. Injuries reported in e-cigarette incidents



- ❖ Thirty-eight of the incidents resulted in severe injury to an individual, meaning that the victim required hospitalization, and may have suffered loss of a body part, 3rd degree burns, or facial injuries.
- ❖ Eighty victims suffered moderate injuries, which were defined as persons requiring treatment in the emergency room for smoke inhalation, 2nd degree burns, or lacerations requiring stitches. Typically, incidents reported as moderate injuries did not require admission to the hospital.

³⁴Press in the United Kingdom has reported one death in an August 2014 incident where an e-cigarette that was being charged in a non-manufacturer approved device exploded and ignited nearby oxygen equipment.



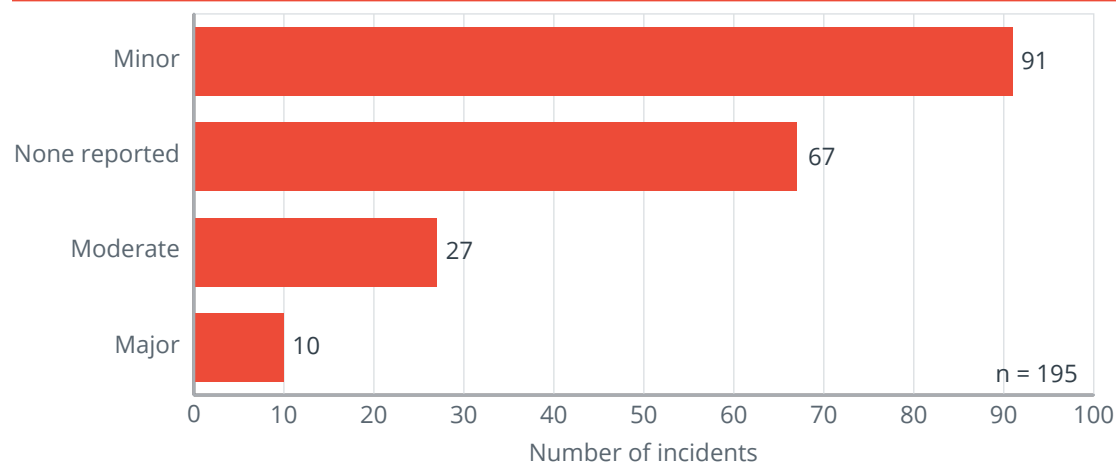
- Fifteen individuals suffered minor injuries, including smoke inhalation, minor lacerations, or 1st degree burns. Emergency room treatment may or may not have been provided.
- No injuries were reported in 62 (32 percent) of the incidents.

The incidents involving severe injuries occurred while the e-cigarette device was in the victim's mouth, in very close proximity to their face, on in a pocket. This inherent intimacy with the device is what makes the e-cigarette hazard unique among consumer products. No other consumer product that is typically used so close to the human body contains the lithium-ion battery that is the root cause of the incidents.

Did the fires spread?

Of the reported fire and explosion incidents involving e-cigarettes, 128 (66 percent) resulted in ignition of nearby contents such as clothing, carpets, drapes, bedding, couches, or vehicle seats. Users were generally nearby when the incident occurred, were alerted by the sound of the explosion, and were able to take action to extinguish the fires while they were still small. Figure 5 shows the distribution of fire spread due to e-cigarette incidents.

Figure 5. Fire spread in e-cigarette fire and explosion incidents.



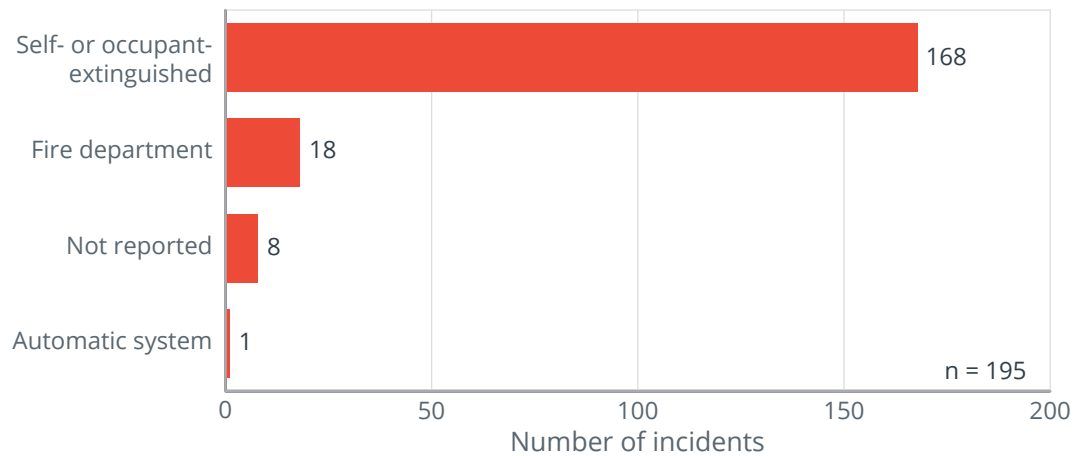
- In 91 incidents, the fire spread was minor, meaning that the scorching or flames either self-extinguished or were extinguished very quickly by persons nearby. Typically, in these incidents, the burned areas were 6 inches or less in diameter.
- In 27 incidents, the fire spread was moderate, where the burned area was larger than 6 inches in diameter, but the fire was extinguished by occupants before the fire department arrived.
- In 10 incidents, the fire spread was major and involved significant portions of a building, and required suppression by the fire department. Typically, these incidents are what the fire service refers to as “room and contents” type fires, or larger.
- In 67 of the incidents (34 percent), there was no fire spread, or fire spread was not evident in the reports reviewed.



How the fires were suppressed

The battery in the e-cigarette contains a limited amount of combustible material. If the burning battery and/or e-cigarette comes into contact with a material that is easily ignited, such as bedding or clothing, a fire can easily spread and grow. The media reports were reviewed to determine how the ensuing fires were suppressed; the results are shown in Figure 6.

Figure 6. How e-cigarette fire incidents were suppressed.



- In 168 incidents, the fires either self-extinguished or were extinguished very quickly by persons nearby.
- In 18 incidents, the fire department performed final suppression of the fire.
- In 8 incidents, the mode of fire suppression was not reported.
- In 1 incident, an automatic fire suppression system extinguished the fire.

Trends

Figure 7 and Figure 8 show that the number of e-cigarette fires and explosions is increasing over time. An increase in the number of e-cigarette fires and explosions was postulated in the 2014 report and appears to correlate well with the increase in sales of e-cigarettes.



Figure 7. Number of e-cigarette fires and explosions.

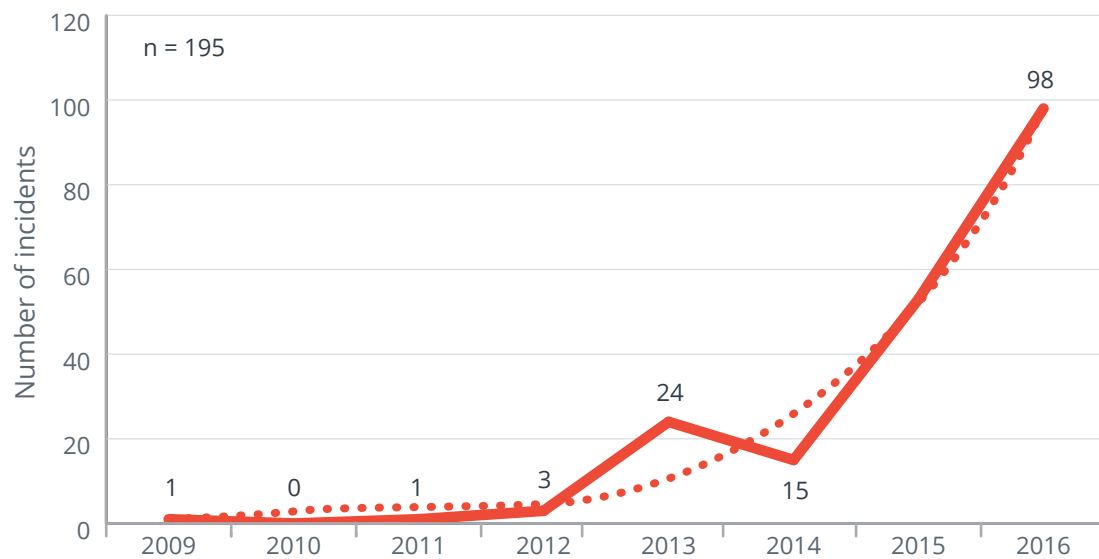
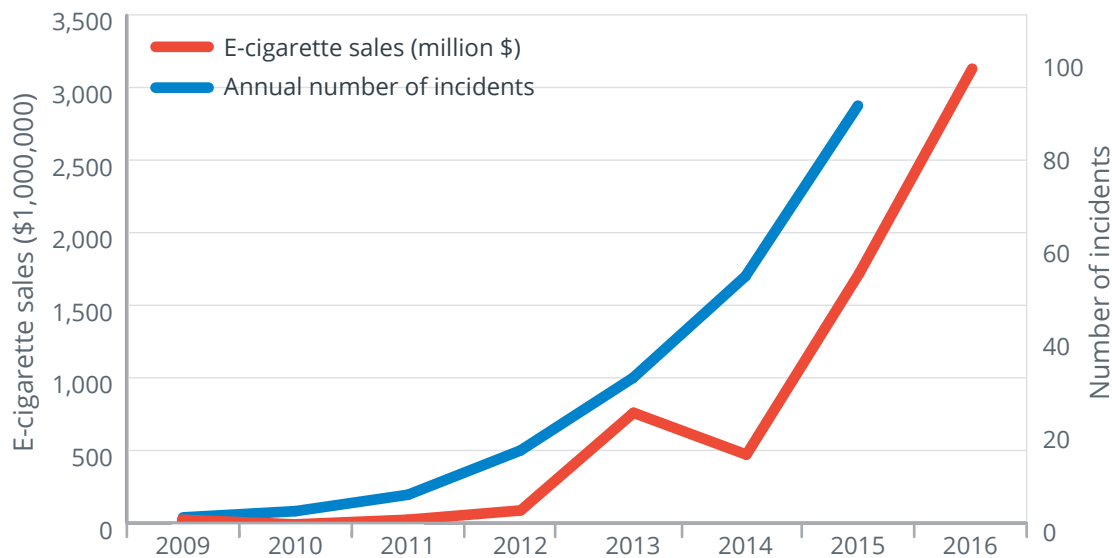


Figure 8. E-Cigarette fires and explosions compared to sales.

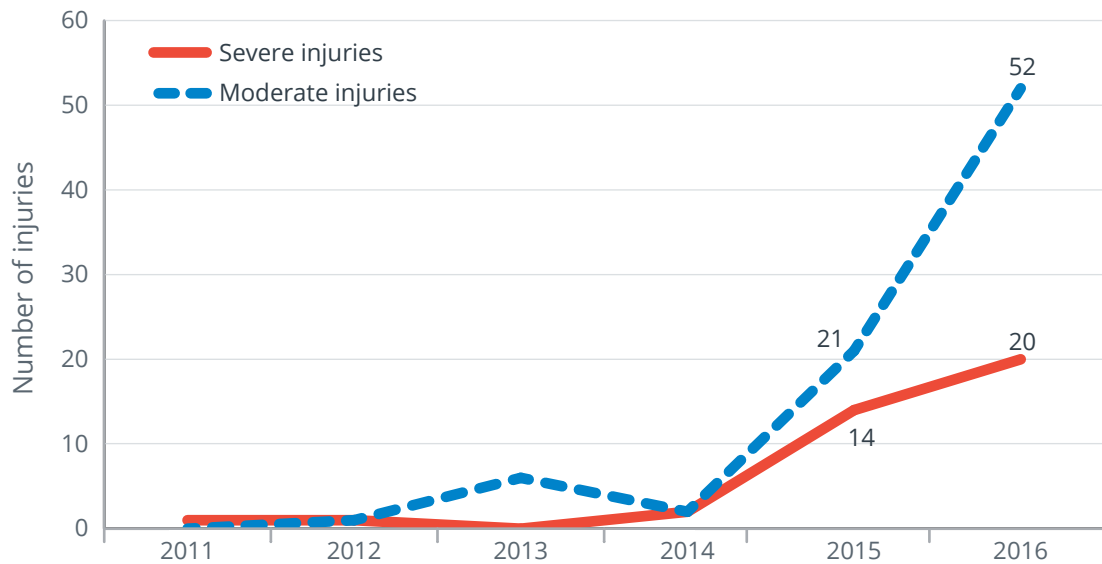


E-cigarette sales data from <http://www.statisticbrain.com/electronic-cigarette-statistics/> on 3/27/2017.

Figure 9 illustrates the increasing number of severe and moderate injuries resulting from e-cigarette explosions and fires. Note the increase in number of severe injuries since 2014. This appears to correlate well with the e-cigarette sales trend shown in Figure 8.



Figure 9. Incidence of severe and moderate injuries from e-cigarette explosions and fires.



Always use the charging appliance that comes with the unit, and follow the manufacturer's instructions. Plugging an e-cigarette into a "standard" USB port to recharge may result in an explosion and/or fire.



A new and unique hazard to consumers

The e-cigarette/lithium-ion battery combination presents a new and unique hazard to consumers. No other consumer product places a battery with a known explosion hazard such as this in such close proximity to the human body. It is this intimate contact between the body and the battery that is most responsible for the severity of the injuries that have been seen. While the failure rate of the lithium-ion batteries is very small, the consequences of a failure, as we have seen, can be severe and life-altering for the consumer.

Responsible battery and e-cigarette manufacturers are working hard to develop remedies for the known lithium-ion battery failures. Indeed, good and successful solutions have been put into production by responsible manufacturers. Unfortunately, the manufacturers cannot control what modifications are made by the consumer, or what replacement battery is installed into the e-cigarette by the consumer. The impact of safety features on consumer safety can be dampened by consumer behavior.

Spare batteries

Many consumers purchase spare batteries so they can vape through the day without having to recharge batteries. Many vape shops sell plastic cases to store and carry the spare batteries; these are intended to prevent a battery short-circuit (and the ensuing explosion) if the terminals of the battery come into contact with keys or spare change in a pocket. As noted above, the device or battery in a pocket was the leading status of the e-cigarette at the time of the incident (Figure 3).

Users procure spare batteries from a number of sources. Some purchase spare batteries with their device in the anticipation that the battery will be compatible with the protection circuitry in the device. Others will salvage lithium-ion batteries from old laptop computers or power tool battery packs. While salvaged batteries can be essentially free, few users understand that such batteries rarely have protective circuitry built in, since robust protective circuitry is typically integrated into the battery pack and/or the original device. Still other users purchase spare batteries from a variety of sources.

A quick search of online sales or auction sites will show thousands of listings for 18650 batteries, a lithium-ion battery frequently used in e-cigarettes and many other consumer devices. Most of the listings will highlight the energy capacity in milli-amp hours (mAh) of the battery being offered; typical listings vary from 2,500 mAh to 6,000 mAh. Many consumers will gravitate to the higher capacity batteries to gain the longest use. Unfortunately, many of these claims are unsubstantiated or misleading. The space inside the case of every 18650 battery for the battery components is the same, and the capacity varies considerably depending on the current draw.

Similarly, many of the online listings will claim that a battery is “protected” or “has protection,” implying protection against overcharging, overheating, or other deleterious events. While the manufacturer may (or may not) be placing a protection circuit in the battery, there is generally little technical information available about this “protection” that even an advanced user could access.



Do it yourself

Further compounding the safety situation is the fact that a substantial number of e-cigarette users either construct their own devices from widely available parts or modify commercial products to suit their desires. Since the data reviewed in preparing this report do not provide sufficient information to permit any conclusion about how many of the incidents reported involved homemade or modified devices, it is not possible to draw valid conclusions about how these practices could be impacting the incidence of fires.

There are a number of sites on the internet that provide instructional material on how to safely construct or modify a device. Many vape shops also offer advice and instruction for the do-it-yourself vaper. The quality of the instruction and advice available varies widely, and even the best of those that were reviewed in the preparation of this report are incomplete in that they overlook elements of battery/system safety or rely on poorly-documented system components. Without a proper engineering analysis, neither purchasing a battery that has “protection,” nor adding a generic “protection circuit” to a device, can be a guarantee that the desired level of protection will be provided.

Safety standards

UL has recently promulgated UL Standard 8139, *Electrical Systems of Electronic Cigarettes*. This new test standard will evaluate the safety of the electrical and battery systems of e-cigarettes, in the hope that fires and explosions resulting from the battery and electrical system can be eliminated.



It is important to understand what UL8139 will not do. UL advises that,

“These requirements do not cover the consumable of the electronic cigarette, such as e-Liquids and other inhaled vapor substances, wicks, and other particulate matter inhaled during use. These requirements do not consider the physiological effects of any consumable used with the product.”

Most Americans are familiar with the UL listing mark and look for this certification when purchasing electrical products. E-cigarettes that are UL-listed using this new test standard should provide a level of assurance of safety to consumers that has not been available before. However, this assurance is not absolute, since manufacturing defects and damage to the product can still occur.

This new UL standard is an important development in the safety of these devices and should serve to reduce the number of e-cigarette fires and explosions, as well as the number of injuries that American consumers have experienced from these products.



Conclusions

E-cigarettes using lithium-ion batteries present a new and unique hazard to consumers. No other consumer product places a battery with a known explosion hazard such as this in such close proximity to vital areas of the human body. In order to reduce the frequency of e-cigarette fires and explosions, the following recommendations should be considered:

- Consumers should look for and demand e-cigarette products that have been evaluated for safety and that are listed by UL. Look for the UL mark on the product and packaging.
- The long-term effects of the new UL safety standard cannot be determined at this time. Even with improved protection circuitry in an e-cigarette device, and with 100 percent compliance in providing such protection, there remains a possibility of battery failure and severe injury. Manufacturing defects and damage to the device or battery simply cannot be eliminated.
- Lithium-ion batteries should not be used in e-cigarettes. While the number of batteries that explode and catch fire is statistically small, the catastrophic nature of the injuries that can occur warrants the use of another battery technology for e-cigarettes.
- As long as lithium-ion batteries continue to be used in e-cigarettes, severe injuries will continue to occur. As the number of e-cigarettes in use increases, the number of severe injuries from lithium-ion battery explosions and fires will likely continue to increase.
- Suppliers, industry associations, user groups, and fire prevention educators should all stress the importance of using UL-listed devices and proper charging practices to reduce the number of incidents. Stronger warnings in the literature and user manuals may be helpful.





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Appendix 1

A primer on lithium-ion battery failure in e-cigarettes

Lithium-ion-polymer (Li-ion) batteries are excellent power supplies for portable devices and are widely used by consumers, industry, and the emergency services. Li-ion batteries are known to experience statistically rare failure events, including fire and explosions (Mikolajczak, Kahn, White & Long, 2011). Indeed, there are multiple reports of fires caused by failures of Li-ion batteries in cell phones, laptop computers, medical devices, electric cars, power tools, hoverboards, and a myriad of other electronic devices.

Why do Li-ion batteries catch fire?

A cylindrical Li-ion battery is made by winding alternating layers of metallic anode and cathode material separated by a porous film. The porous separator film holds a liquid electrolyte made of an organic solvent and dissolved lithium salts. This core is placed into a cylindrical metal can through the open end, and the can is then sealed tightly closed so that the liquid electrolyte cannot escape or evaporate.



All of the electrolytes currently used in Li-ion batteries are either flammable or combustible liquids. It is this flammable electrolyte that causes the fire and explosion when the Li-ion battery overheats.⁵ Scientists are working to develop nonflammable electrolytes for Li-ion batteries, but these are not yet available in the market.

During the typical failure mode for a Li-ion battery, the electrolyte is heated to its boiling point.⁶ The internal pressure in the battery builds to a point where the seal at the end of the battery ruptures, and the pressure is abruptly released through the sealed end of the battery case. Usually, the electrolyte then ignites, and expanding gas from the rapid combustion will further increase the pressure. The fire is sustained briefly after initial ignition by the porous separator film, which is made of plastic. Mikolajczak, et al. (2011) provide detailed descriptions and explanations of the various failure modes that Li-ion batteries can experience. A number of videos showing Li-ion battery ignition can be easily found on the internet.

Why is the impact of battery failure different in e-cigarettes?

E-cigarettes are different from other electronic consumer devices because the battery is installed in a cylindrical device (the e-cigarette) that has its weakest (structural) point at the ends. When the battery seal (at the end of the battery) ruptures, the pressure within the e-cigarette cylinder builds quickly until it ruptures, usually at the end. As a result of the battery and container failure, one or the other, or both, can be propelled across the room like a bullet or small rocket.

In contrast to e-cigarettes, the cylindrical Li-ion batteries used in laptop computers and portable tools are contained in rigid plastic cases that are generally strong enough to prevent the failing battery from rocketing away. Fires do occur as a result of battery failure, but most fires initially involve only the device that the battery pack is installed in.⁷

⁵A variety of organic solvents are used, alone or in combinations. The boiling points of the electrolytes range from 200°F to 500°F, and ignition temperatures range from 60°F to 300°F.

⁶Overheating of the battery (thermal runaway) can be caused by: puncture, overcharge, external heat, short circuit, or internal cell fault.

⁷A laboratory experiment showing worst-case Li-ion battery failures in a laptop computer can be seen at <https://www.youtube.com/watch?v=pizFsY0jss#t=250>.



Cell phones, tablets, and other devices use pouch-type Li-ion batteries that are flat, rather than cylindrical in shape, and are encased in a sealed flexible plastic pouch or rigid plastic case instead of a metal can. These pouch-type batteries will not build up much pressure when they overheat and do not explode violently when they fail. Pouch batteries can, and have, overheated to the point where the pouch bursts, the electrolyte ignites and a fire spreads beyond the device.⁸



What safeguards are used to prevent fires in Li-ion batteries?

Several different approaches to protecting Li-ion batteries against explosion or fire have been developed. Protection can be built into the battery, into the charging appliance, or into the electronics that control the charging cycle and/or the current draw. Often, a combination of these approaches is used in a product. Amon, Andersson, Karlson, and Sahlin (2012) conclude that the risk of fire depends heavily on the type and effectiveness of the protection system used.

The protection appropriate for a particular device or appliance is determined by the device manufacturer, and/or by regulations or standards that apply to that product. Since there are no regulatory standards directly applicable to e-cigarettes, the selection of protection for the Li-ion battery is left to the manufacturers' best judgment. The fact that, statistically, so few of these devices are failing in the ways described in the media reports suggests that e-cigarette manufacturers have been largely successful in preventing battery fires.

⁸Failure of an intentionally overloaded pouch-type Li-ion battery can be seen at https://www.youtube.com/watch?v=SMY2_qNO2Y0&index=8&list=PLkLKD6x5giq2LyjhKbjt-OYR8kiAN8_UW.

Appendix 2

E-cigarette fires and explosion incidents

E-cigarette incidents reviewed							
Date	Location	Status	Fire beyond e-cig?	Injuries?	Extinguished	Notes	Source URL
Aug 2009	Minneapolis, MN	Transport	Moderate	None	System	Fire in a cargo container on a FedEx® jet discovered during approach to landing. Fire suppression system activated. Fire was linked to lithium-ion batteries in box of Ruyan inhalers, model RappE-Mystick.	
Nov 2011	Greeley, CO	Use	No	Severe	Self or occupant	A man was hospitalized for eight days after an electronic cigarette exploded in his face, sending burning debris and battery acid into his mouth, face and eyes. Prodigy V3.1 e-cig cited, as well as Radio Shack Enercell battery.	https://www.consumeraffairs.com/news04/2012/04/e-cigarette-exploded-in-mans-face-suit-charges.html
Feb 2012	Niceville, FL	Use	No	Severe	Self or occupant	E-cigarette explodes in mouth causing severe burns, lost teeth and part of tongue. Lots of press coverage on this one. Some stories report that the device may have been modified by the user.	http://www.cbsnews.com/news/electronic-cigarette-explodes-in-mans-mouth-causes-serious-injuries/

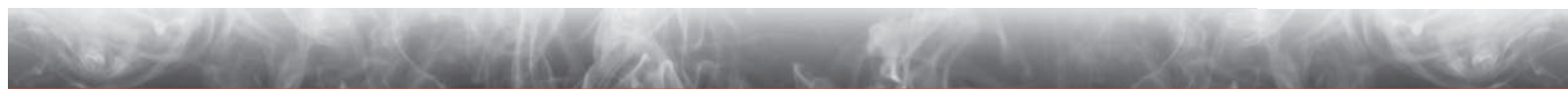


E-cigarette incidents reviewed							
Date	Location	Status	Fire beyond e-cig?	Injuries?	Extinguished	Notes	Source URL
Apr 2012	Muskogee, OK	Use	No	None	Self or occupant	New e-cig exploded when withdrawn from packaging.	http://www.motherjones.com/environment/2014/04/e-cigarettes-explode-fda-timeline
Nov 2012	Sherman, TX	Charge	No	Moderate	Not reported	Battery into two-hour charge exploded in users hand. Second and third degree burns on hand and smoke inhalation.	http://www.kxii.com/news/headlines/E-cigarette-explodes-in-Texoma-mans-home-215771641.html
Apr 2013	Glendale, AZ	Charge	Moderate	None	Self or occupant	Exploded while charging from USB adaptor in car. Hot fragments ignited back seat upholstery.	http://www.kpho.com/story/22066822/unattended-electronic-cigarette-charger-explodes-car-catches-fire
Apr 2013	Oklahoma City, OK	Storage	Moderate	Minor	Not reported	Explosion of lithium-ion battery in e-cig in office. Occupant treated for inhalation.	http://www.koco.com/news/oklahomanews/okc/Police-Explosion-at-apartment-complex-came-from-e-cigarette/19768650#!T8hDI
Jul 2013	Corona, CA	Charge	Minor	Moderate	Self or occupant	Charging in car led to "blowtorch" fire and explosion. Debris flew into occupant's lap, resulting in second degree burns on upper thighs and lower buttocks. Driver used coffee to extinguish the fire.	http://losangeles.cbslocal.com/2013/07/11/corona-couple-sues-after-e-cigarette-battery-explodes-in-car/
Jul 2013	Oklahoma City, OK	Charge	Minor	None	Self or occupant	Device exploded and shot across the room 15 minutes after being plugged into charger. Burn marks on carpet and wall.	http://kfor.com/2013/08/01/e-cigarette-explodes-and-sparks-small-fire/



E-cigarette incidents reviewed

Date	Location	Status	Fire beyond e-cig?	Injuries?	Extinguished	Notes	Source URL
Jul 2013	Tulsa, OK	Charge	Minor	Not Reported	Not reported	Fire while charging off laptop.	http://www.newson6.com/story/22536957/tulsa-mans-e-cig-catches-fire-while-charging
Jul 2013	Claremont, CA	Storage	Moderate	Moderate	Self or occupant	E-cigarette charging in car overheated and exploded. Parts landed in female occupant's lap and caused burns. Reported second degree burns on back of upper thighs and lower buttocks.	http://losangeles.cbslocal.com/2013/07/11/corona-couples-after-e-cigarette-battery-explodes-in-car/
Aug 2013	Oklahoma City, OK	Charge	Minor	None	Self or occupant	Device exploded while being charged.	http://kfor.com/2013/08/01/e-cigarette-explodes-and-sparks-small-fire/
Aug 2013	Phoenix, AZ	Charge	Minor	None	Self or occupant	This one ignited carpet, was put out by resident. Video shows plugging into white laptop for charge.	http://www.azfamily.com/Global/story.asp?S=28374147
Aug 2013	Phoenix, AZ	Charge	Major	Minor	Fire department	Resident states in article that e-cig started two fires in their bedroom in recent days. They just exploded. Charging for about 20 minutes. First incident scorched carpet, second gutted the bedroom. Resident treated for smoke inhalation. (Smokin Time brand cited.)	http://www.kptv.com/story/23785774/phoenix-fd http://www.kpho.com/story/23273275/e-cigarette-nearly-sparks-fire-at-phoenix-apartment



E-cigarette incidents reviewed							
Date	Location	Status	Fire beyond e-cig?	Injuries?	Extinguished	Notes	Source URL
Sep 2013	Grant Park, GA	Charge	Minor	None	Self or occupant	Device exploded during charging, shooting flame across the room. Scorch mark on couch, hole burned in carpet. Occupant used a rag to control.	http://www.wsbtv.com/news/news/local/woman-says-e-cigarette-exploded-shot-flames-4-feet/nZkCX/ http://www.businessinsider.com/e-cigarettes-are-exploding-literally-2013-9?op=1
Sep 2013	Binghamton, NY	Charge	Moderate	None	Fire department	Fire in home caused by charging e-cig.	http://www.wbng.com/story/32982757/fire-marshall-charging-electronic-cigarette-sparked-fire
Sep 2013	Provo, UT	Charge	Moderate	Moderate	Self or occupant	Explosion while charging in car. Hot fragments ignited baby's car seat in back seat resulting in first and second degree burns to 3 year old. Driver used iced coffee to extinguish fire.	http://newsone.com/2724915/e-cigarette-fire-utah-kinzie-barlow/
Oct 2013	La Crosse, WI	Charge	Minor	Not Reported	Self or occupant	Story highlights several incidents during charging. Lack of overcurrent/overheat circuitry implicated.	http://www.dailymail.co.uk/news/article-2442715/E-cigarette-explosion-causes-Wisconsin-home.html
Oct 2013	Valparaiso, FL	Charge	Moderate	None	Self or occupant	Explosion while charging from USB port, igniting curtains. Occurred after 10 minutes charging.	http://www.nwfdailynews.com/1.214335

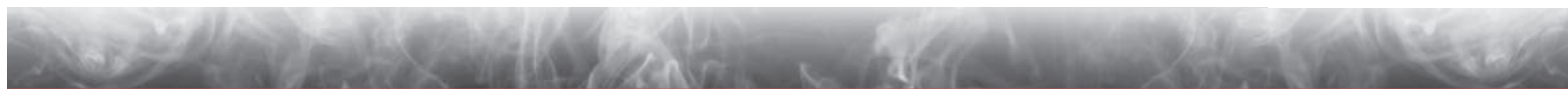


E-cigarette incidents reviewed

Date	Location	Status	Fire beyond e-cig?	Injuries?	Extinguished	Notes	Source URL
Oct 2013	Blaine, MN	Charge	Minor	None	Self or occupant	Exploded and shot across the room while charging on USB plugged into computer. Carpet burned in several spots.	Original story accessed October 2014 from www.fox9.com (KMSP, Eden Prairie, MN) has been removed.
Nov 2013	Kootenai County, ID	Charge	Moderate	None	Self or occupant	Explosion while charging from USB port of laptop. Ignited couch. Smoke alarm alerted the sleeping family of four.	http://www.wptv.com/news/local-news/water-cooler/e-cigarette-blamed-for-house-fire-in-idaho-electronic-cigarette-battery-overcharged-and-exploded
Nov 2013	Warren, MI	Charge	Minor	None	Self or occupant	Device blew out of wall socket in ball of fire. Scorched hardwood flooring before occupant extinguished it. TV video report shows a USB wall charger that does not match those supplied by the manufacturer (Bulldog brand cited).	http://www.wxyz.com/news/warren-woman-says-electronic-cigarette-caused-small-explosion-and-fire
Nov 2013	Eugene, OR	Charge	Moderate	None	Not reported	Device failed after about two hours charging. Fragments flew to back seat, igniting seat of truck.	http://www.kval.com/news/local/e-cig-explodes-damaging-truck
Nov 2013	Queen Creek, AZ	Charge	Minor	None	Self or occupant	Exploded while charging, shooting across the room. Impacted window, fell to floor and ignited carpet.	http://www.motherjones.com/environment/2014/04/e-cigarettes-explode-fda-timeline http://www.azfamily.com/story/28374147/exploding-electronic-cigarette-blamed-for-fire



E-cigarette incidents reviewed							
Date	Location	Status	Fire beyond e-cig?	Injuries?	Extinguished	Notes	Source URL
Nov 2013	Colorado Springs, CO	Charge	Moderate	Moderate	Self or occupant	Unattended while charging on floor. Ignited bed. Home occupant burned arms, hands and face while using blanket to smother flames.	http://www.krdo.com/news/local-news/e-cigarette-blamed-for-mattress-fire/34229451
Dec 2013	Salt Lake City, UT	Charge	Minor	None	Self or occupant	E-cig exploded while being charged through USB port on a computer.	http://fox13now.com/2013/12/09/e-cigarette-explodes-while-charging/
Dec 2013	Springfield, MO	Charge	Moderate	Moderate	Self or occupant	Failure while charging on laptop USB port. Ignited bedding, second degree burns on leg and foot. User quoted as saying he likely used the wrong charger.	Original story accessed October 2014 from www.ky3.com (Springfield MO) has been removed.
Dec 2013	Salt Lake City, UT	Charge	Minor	None	Self or occupant	Device exploded while being charged. Shot across the room; minor burn marks.	http://fox13now.com/2013/12/09/e-cigarette-explodes-while-charging/
Dec 2013	Phoenix, AZ	Charge	Major	None	Fire department	E-cig being charged exploded on bed, igniting room and contents.	http://www.abc15.com/news/local-news/investigations/phoenix-fire-department-officials-warn-electronic-cigarette-users-about-fire-danger
Jan 2014	Sneads Ferry, NC	Use	No	Minor	Self or occupant	Device erupted in his face. Temporary blindness, minor burns to face.	http://www.jdnews.com/20140111/man-injured-after-e-cig-blows-up/301119930

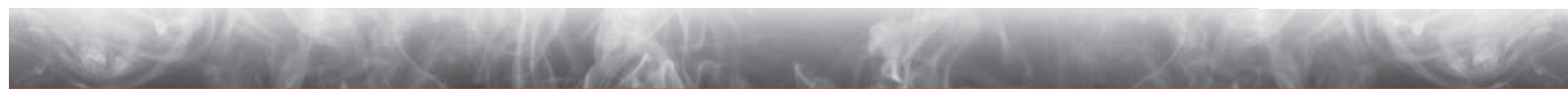


E-cigarette incidents reviewed

Date	Location	Status	Fire beyond e-cig?	Injuries?	Extinguished	Notes	Source URL
Mar 2014	Medford, OR	Charge	Minor	None	Self or occupant	Exploded while being charged, sending bits of burning battery flying into the ceiling and walls. One hot piece of battery landed on a pillow, causing it to smolder and filling the house with smoke.	http://www.katu.com/news/local/Fire-marshall-e-cigarette-batteries-cause-fires-in-Medford-248274331.html
Mar 2014	Medford, OR	Charge	Minor	None	Self or occupant	The lithium batteries that power the vaporizers in electronic cigarettes caused two recent fires in Medford. In this second case, a mattress caught fire, but a resident put it out.	http://www.katu.com/news/local/Fire-marshall-e-cigarette-batteries-cause-fires-in-Medford-248274331.html
Mar 2014	Lompoc, CA	Charge	Moderate	None	Self or occupant	Started kitchen fire while charging unattended.	Original story accessed October 2014 from www.ksby.com (San Louis Obispo, CA) has been removed.
Mar 2014	Syracuse, NY	Not reported	Moderate	Severe	Self or occupant	Patient on oxygen in a hospital suffered first and second degree burns. Patient had e-cig, but investigation has not yet tied e-cig to the ignition. Hospital has banned e-cigs out of caution. Patient transferred to area burn unit.	http://www.foxnews.com/us/2014/04/22/ny-hospital-reinforces-ban-after-e-cigarette-fire/



E-cigarette incidents reviewed							
Date	Location	Status	Fire beyond e-cig?	Injuries?	Extinguished	Notes	Source URL
Apr 2014	Goffstown, NH	Charge	Minor	None	Self or occupant	Resident reported to fire department that e-cigarette was left in bedroom to charge. Shortly thereafter, resident heard a loud bang and on investigating discovered a small fire in the carpet of the bedroom. Resident extinguished the fire and found e-cigarette pieces on the carpet.	Direct report from Lt. Bill Connor, EFO, Goffstown Fire Department.
Apr 2014	Destin, FL	Use	No	Severe	Self or occupant	Vape blew up in his face. Dime-sized hole in the roof of his mouth. Burns to hand, fractured neck and finger, burns to cornea, damaged teeth.	http://www.fox5dc.com/news/national/17391566-story
May 2014	Orlando, FL	Charge	Minor	None	Self or occupant	Resident heard a loud bang in bedroom where e-cigarette was charging and discovered carpet on fire when she investigated. Resident extinguished the fire.	http://www.wftv.com/news/news/local/Action-9-investigates-electronic-cigarette-charger/ngwJM/
Jul 2014	Oklahoma City, OK	Charge	Major	None	Fire department	Device exploded while being charged. Ignited home fire.	http://www.news9.com/story/25939272/e-cigarette-charger-explodes-causes-house-fire

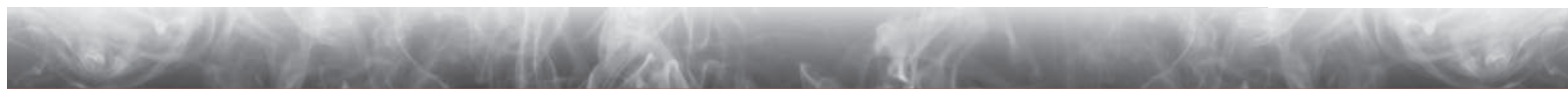


E-cigarette incidents reviewed

Date	Location	Status	Fire beyond e-cig?	Injuries?	Extinguished	Notes	Source URL
Jul 2014	Lawrenceville, NJ	Charge	Major	None	Self or occupant	E-cigarette left unattended for two plus hours in an aftermarket charger in a vehicle failed and started fire in rear seats. Windows were closed, so fire self-extinguished; sedan interior was extensively damaged.	http://njiaai.org/electronic-cigarette-was-overcharged-causing-a-fire/
Aug 2014	Boston, MA	Storage	Minor	None	Self or occupant	E-cigarette packed in checked luggage ignited in the baggage hold of a commercial airliner before takeoff. Burned a "small hole" in the bag.	http://www.nytimes.com/2014/08/14/business/e-cigarettes-under-scrutiny-for-listing-as-flight-hazard.html?_r=0
Sep 2014	Honolulu, HI	Charge	Minor	None	Fire department	Unattended charging via typical AC USB adaptor. Occupant returned to find kitchen counter and contents burning. Occupant extinguished the fire and called fire department.	http://www.hawaiinewsnow.com/story/26659072/explosion-at-honolulu-apartment-blamed-on-e-cigarette
Nov 2014	College Park, MD	Use	Minor	None	Fire department	A sparking e-cigarette was discarded into a university trash can, igniting the contents. Fire department responded and extinguished the fire. No damage beyond the trash.	http://www.diamondbackonline.com/news/campus/article_dfefbb78-6ac9-11e4-86ee-97c41f1e0c8e.html



E-cigarette incidents reviewed							
Date	Location	Status	Fire beyond e-cig?	Injuries?	Extinguished	Notes	Source URL
Nov 2014	Tacoma, WA	Not reported	Major	Moderate	Fire department	A woman living on the bottom floor of the building told her neighbors an e-cigarette exploded and caught her couch on fire. Fire investigators told KIRO 7 she had burns on her hand. One man was taken to the hospital for smoke inhalation and burns. Fire spread to multiple rooms and floors in this six-unit apartment.	http://www.kirotv.com/news/news/1-taken-hospital-tacoma-house-fire/nh5Tq/
Dec 2014	Marion, OH	Charge	Moderate	None	Fire department	It appeared the e-cigarette had been plugged into a cellphone charger, which was not compatible. The outlet set the curtains on fire, which spread to the couch. Minor smoke damage to home, no injuries.	http://www.marionstar.com/story/news/local/2014/12/17/cigarette-causes-home-fire/20542429/
Jan 2015	NJ	Pocket	No	Moderate	Self or occupant	Device in pants pocket exploded without warning. Pants leg ignited. Victim sustained partial-thickness burn to right leg.	http://pubs.sciepub.com/ajmcr/3/4/1/
Jan 2015	Sparks, NV	Charge	Minor	None	Fire department	E-cig in a nonstandard charger exploded in a high school gym. Minor damage to the gym floor.	http://www.kolotv.com/home/headlines/Code-Yellow-Lockdown-in-Effect-at-Sparks-High-288294081.html

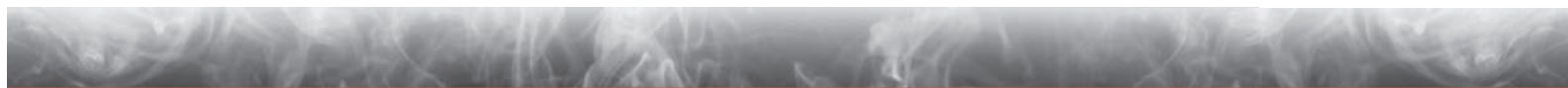


E-cigarette incidents reviewed

Date	Location	Status	Fire beyond e-cig?	Injuries?	Extinguished	Notes	Source URL
Jan 2015	Oak Ridge, TN	Charge	Minor	None	Self or occupant	An East Tennessee woman says her home caught on fire after an e-cigarette exploded while it was on the charger. It happened around 5 a.m. Wednesday. She says she was awake and quickly put out the flames.	http://www.local8now.com/home/headlines/Oak-Ridge-womans-e-cigarette-blows-up-while-charging-288744041.html
Jan 2015	Latrobe, PA	Charge	Moderate	None	Self or occupant	E-cigarette battery charging above a garbage can. The garbage can caught on fire and burned some wiring in the room near the outlet.	NFIRS 000027
Feb 2015	Arlington, TX	Pocket	No	Moderate	Self or occupant	Batteries for e-cig exploded in pants pocket. Victim suffered first and second degree burns on upper thigh and crotch.	http://www.star-telegram.com/news/local/community/arlington/article13493492.html
Feb 2015	Yuba City, CA	Not reported	Minor	None	Self or occupant	E-cig exploded and burned carpet. No information in report regarding charging.	http://fox40.com/2015/02/18/e-cigarette-almost-claims-mans-life/
Feb 2015	Wilbraham, MA	Charge	Minor	None	Self or occupant	Battery exploded when plugged into computer to charge. Rocketed across the room causing small carpet burns.	NFIRS 0000244



E-cigarette incidents reviewed							
Date	Location	Status	Fire beyond e-cig?	Injuries?	Extinguished	Notes	Source URL
Feb 2015	Ramona, CA	Use	No	Severe	Fire department	Authorities responded to the Stage Stop Liquor Store in Ramona Sunday evening after an e-cigarette exploded, burning an employee and damaging the store. Materials from the e-cigarette cut the man's face and shattered a glass display inside the store, the captain said. Victim was hospitalized with facial burns.	http://fox5sandiego.com/2015/02/09/e-cigarette-explodes-in-mans-face/
Feb 2015	Anaheim, CA	Use	No	Minor	Not reported	Witnesses told police that the 17-year-old boy was holding an electronic cigarette in the moments before the explosion. Victim suffered cuts and burns to his hand.	http://www.latimes.com/local/lanow/la-me-ln-ecigarette-explosion-oc-teen-20150210-story.html http://abc7.com/news/e-cigarettes-may-lead-to-explosions-fires/513968/

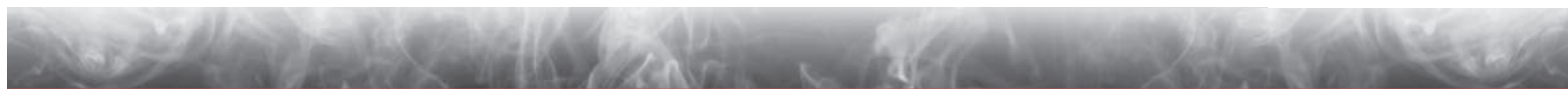


E-cigarette incidents reviewed

Date	Location	Status	Fire beyond e-cig?	Injuries?	Extinguished	Notes	Source URL
Feb 2015	CA	Use	No	Severe	Self or occupant	When victim brought the device up to his face to see if it was making the hissing sound, it exploded. The tank hit him in the face, the mouth piece blasted through his cheek leaving a ragged hole, and the bottom of the tank blew off and caught fire. A nearby curtain, blanket and chair caught fire. Second degree burns to face, ear and neck, also broken cheekbone and concussion.	http://www.dailymail.co.uk/news/article-3327374/Former-LA-Galaxy-star-suffers-hole-cheek-e-cigarette-exploded-face-industry-faces-string-lawsuits-victims-say-suffered-burns-lost-FINGERS.html
Mar 2015	Gates, NY	Use	Minor	Moderate	Not reported	MOD failed 30 seconds after battery was inserted. Victim required about six stitches to close hand laceration.	https://www.youtube.com/watch?v=o3ilX9nln2E
Mar 2015	Santa Ana, CA	Use	No	Minor	Not reported	Victim was smoking a MOD e-cigarette about 1:45 a.m. Treated for flash burns to face and hand, and lacerations to the hand.	http://www.latimes.com/local/lanow/la-me-ln-man-ecigarette-explodes-santa-ana-20150309-story.html http://losangeles.cbslocal.com/2015/03/09/e-cigarette-explosion-burns-oc-mans-face-and-sets-fire-to-bed/



E-cigarette incidents reviewed							
Date	Location	Status	Fire beyond e-cig?	Injuries?	Extinguished	Notes	Source URL
Apr 2015	Little Egg Harbor, NJ	Charge	Minor	None	Not reported	Consumer using cellphone wall charger instead of e-cig charger (USB cord). Char marks in kitchen.	http://www.pressofatlanticcity.com/news/breaking/little-egg-harbor-knows-e-cigarettes-can-explode/article_6f7693d0-ed4b-11e4-b70f-a3cb9214b370.html
Apr 2015	Jupiter, FL	Pocket	No	Moderate	Self or occupant	Battery exploded in pants pocket. Severe burns to leg.	http://palmbeachhealthbeat.blog.palmbeachpost.com/2015/05/27/jupiter-schoolteacher-claims-vape-battery-exploded-in-pants/
Apr 2015	N. Myrtle Beach, SC	Charge	Minor	None	Self or occupant	The event occurred April 8, 2015. The device was being charged; a loud noise was heard. After which, a fire was found in a suitcase which was open. A dry chemical extinguisher was used to extinguish. Products cited: AC Adapter Eleaf Model: DEK-OC-001 Output 5.0 V. Battery pack: Brand VaVaVape	Direct report from Keith Williams, Fire Marshal, Fire Prevention Division, City of North Myrtle Beach, 1018 Second Ave. South, North Myrtle Beach, S.C. 29582. (843) 280-5614 Office. krwilliams@nmb.us
Jun 2015	Coeur D'Alene, ID	Charge	Minor	None	Self or occupant	Device in wall charger not provided with the e-cig. Battery failed, igniting carpet. Extinguished by hotel manager with extinguisher.	http://www.krem.com/story/news/local/kootenai-county/2015/06/18/e-cigarette-in-wrong-charger-sparks-coeur-dalene-fire/28961587/
Jun 2015	Austin, TX	Pocket	No	Moderate	Self or occupant	Extra battery exploded in pocket, causing first and second degree burns on leg.	http://www.theblaze.com/stories/2015/07/22/e-cigarette-blows-up-like-a-firecracker-in-mans-pocket/



E-cigarette incidents reviewed

Date	Location	Status	Fire beyond e-cig?	Injuries?	Extinguished	Notes	Source URL
Jul 2015	Miramar Beach, FL	Use	No	Severe	Self or occupant	Device exploded in mouth. Severe injuries reported.	http://www.waltonsun.com/1.498698
Jul 2015	Las Vegas, NV	Pocket	Minor	Moderate	Self or occupant	Device exploded in pocket. Burns to leg.	http://www.reviewjournal.com/news/las-vegas/las-vegas-man-files-lawsuit-over-exploding-e-cigarette-battery
Aug 2015	Wyandotte, MI	Use	No	Moderate	Self or occupant	The pen was in victim's hand when it exploded. "The thing just fired up out of my hands, hit the wall," he said. His arm was scorched; he may have lasting nerve damage to his thumb and a part of his abdomen is black from burns, according to the report.	http://patch.com/michigan/dearborn/man-injured-exploding-e-cigarette-congresswoman-wants-fda-regulate-0
Sep 2015	CA	Pocket	No	Severe	Self or occupant	Second degree burns to left leg. Two skin grafts.	http://www.dailymail.co.uk/news/article-3327374/Former-LA-Galaxy-star-suffers-hole-cheek-e-cigarette-exploded-face-industry-faces-string-lawsuits-victims-say-suffered-burns-lost-FINGERS.html
Sep 2015	White House, TN	Pocket	Minor	Moderate	Self or occupant	Device overheated and caught fire in pocket. Second and third degree burn to upper thigh and stomach.	http://kval.com/news/nation-world/white-house-teen-burned-by-exploding-vape-warns-of-potential-dangers



E-cigarette incidents reviewed							
Date	Location	Status	Fire beyond e-cig?	Injuries?	Extinguished	Notes	Source URL
Oct 2015	Wichita, KS	Use	No	Minor	Self or occupant	Battery exploded when e-cig was taken off charger to use. Minor burns to hand. Parts of the e-cig flew in separate directions, parts embedded into sheet rock walls on opposite side of the room.	Original story accessed November 2016 from www.ky3.com (Wichita, KS) has been removed.
Oct 2015	Omaha, NE	Use	No	Moderate	Self or occupant	Device exploded, burning his face, knocking out several teeth, and breaking the roof of mouth.	http://www.ketv.com/article/vaporizer-explodes-in-mans-mouth/8302383
Oct 2015	Cape Coral, FL	Pocket	Minor	Moderate	Self or occupant	Device exploded in man's pocket. Second and third degree burns to thigh.	http://www.nbc-2.com/story/30387843/cape-man-is-latest-to-suffer-from-e-cigarette-malfunction#.VjORmflVhrM https://www.youtube.com/watch?v=bLcL-w2stp8&feature=youtu.be
Oct 2015	Seattle, WA	Use	Minor	Severe	Self or occupant	Device exploded in mouth. Lost eight teeth, lacerations to lips and gums, burns to right eye.	http://www.seattletimes.com/seattle-news/health/exploding-e-cigarettes-send-vapers-to-harborview-with-gruesome-injuries/

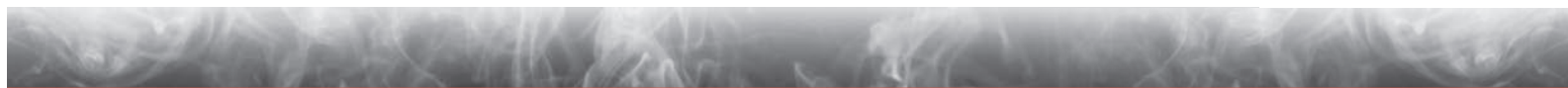


E-cigarette incidents reviewed

Date	Location	Status	Fire beyond e-cig?	Injuries?	Extinguished	Notes	Source URL
Oct 2015	Bakersfield, CA	Use	No	Severe	Self or occupant	Device exploded near his face, badly burning his mouth, tongue, and left hand, which was holding the device. Doctors amputated his left index finger.	http://ktla.com/2015/11/19/lawsuits-filed-after-exploding-e-cigarettes-leave-3-injured/ http://www.mercurynews.com/2015/11/20/los-angeles-exploding-e-cigarettes-prompt-lawsuits-one-user-lost-half-a-finger/
Oct 2015	North Naples, FL	Use	No	Severe	Self or occupant	Twenty-one year old man critically injured when e-cig exploded in his mouth during use. Reports include claims that part of the device went down his throat and exploded again.	http://www.foxnews.com/health/2015/10/28/florida-man-placed-in-coma-after-e-cigarette-explosion.html http://www.winknews.com/2015/10/26/e-cigarette-explosion-leaves-man-in-medically-induced-coma/
Nov 2015	Columbus, NE	Use	No	Moderate	Self or occupant	First-degree burns to his eye, and first and second-degree burns to his face. Nearly lost ear. Device exploded near head.	http://www. Kearneyhub.com/news/regional/columbus-man-almost-loses-an-ear-in-e-cigarette-explosion/article_6496bd6e-8d6e-11e5-aff1-3fabf4c602ba.html
Nov 2015	Bentonville, AK	Use	No	Severe	Self or occupant	User reported, "I put it to my mouth, and as soon as I pressed the button on the bottom, the device exploded." User suffered burns to mouth, throat, and hand, shattered teeth, and severed lips.	http://www.arkansasmatters.com/news/local-news/e-cigarette-explodes-in-bentonville-mans-face



E-cigarette incidents reviewed							
Date	Location	Status	Fire beyond e-cig?	Injuries?	Extinguished	Notes	Source URL
Nov 2015	Aloha, OR	Charge	Moderate	None	Self or occupant	Device exploded when charging. Ignited wicker shelving unit.	NFIRS 0035805
Nov 2015	Shreveport, LA	Pocket	Moderate	None	Self or occupant	He stated that he was looking for his keys when something sparked coming out of his pocket. The charger was flung into the right rear of the passenger compartment, causing clothing and other materials behind the seat to catch fire.	NFIRS 1536089
Nov 2015	CA	Pocket	Minor	Moderate	Self or occupant	Device burned and then flashed inside pants pocket. Second and third degree burns on thumbs and left leg.	http://mynews1a.com/uncategorized/2016/01/11/did-e-cigarette-explode-in-his-pocket-user-sues-manufacturer-seller/
Nov 2015	Washington County, PA	Storage	Minor	Minor	Self or occupant	Mod-type device exploded while driving car. First degree burns to two occupants. Minor burns to car seat and floor carpet.	http://www.wpxi.com/news/local/e-cig-battery-explodes-sets-washington-cou/26882472
Nov 2015	Seattle, WA	Use	No	Severe	Self or occupant	Device exploded near mouth. Lacerations to nose and upper lip; ripped out nose ring.	http://www.seattletimes.com/seattle-news/health/exploding-e-cigarettes-send-vapers-to-harborview-with-gruesome-injuries/



E-cigarette incidents reviewed

Date	Location	Status	Fire beyond e-cig?	Injuries?	Extinguished	Notes	Source URL
Nov 2015	Colorado Springs, CO	Use	No	Severe	Self or occupant	Device exploded near 29 year old user's face. Reports included fractured neck vertebrae, facial fractures, fractured teeth and other injuries.	http://www.myfoxmemphis.com/story/30580754/memphis-native-in-hospital-after-an-e-cigarette-exploded http://www.huffingtonpost.com/entry/e-cigarette-explosion_56532c70e4b0879a5b0b91da?ncid=xtlnkusaolp00000592
Nov 2015	Hollywood, FL	Charge	Minor	None	Self or occupant	E-cig exploded on bed while being charged. Ignited mattress and bed clothes.	http://www.local10.com/news/tina-kruzyck-says-e-cigarette-exploded-while-she-slept-caught-bed-on-fire
Nov 2015	Bremerton, WA	Charge	Major	None	Fire department	Charging e-cig ignited hotel room contents. Room and contents fire.	http://www.kitsapdailynews.com/news/e-cigarette-causes-hotel-fire-over-holiday-weekend/
Nov 2015	Newport Beach, CA	Use	No	Moderate	Self or occupant	Device exploded in hand. Third degree burns to hand.	http://abc7.com/news/newport-beach-man-suffers-burns-after-e-cigarette-explodes/1104400/
Dec 2015	Gulfport, FL	Pocket	No	Moderate	Self or occupant	Device exploded in pants pocket. Second and third degree burns to leg.	http://saintpetersblog.com/gulfport-man-claims-samsung-vaping-battery-exploded-caught-fire/
Dec 2015	Oklahoma City, OK	Use	No	Moderate	Self or occupant	Device exploded while being refilled. Laceration to head; burns to carpet.	http://kfor.com/2015/12/08/blood-just-pouring-down-e-cig-explodes-in-oklahoma-mans-face/
Dec 2015	Grand Rapids, MI	Pocket	Minor	Moderate	Self or occupant	E-cigarette battery exploded in his pocket; second and third degree burns on his leg.	http://fox17online.com/2015/12/08/id-rather-have-lung-cancer-e-cigarette-explodes-in-mans-pocket/



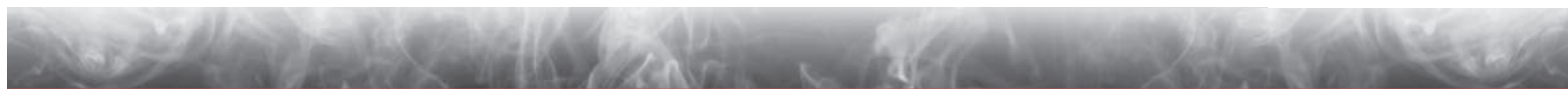
E-cigarette incidents reviewed							
Date	Location	Status	Fire beyond e-cig?	Injuries?	Extinguished	Notes	Source URL
Dec 2015	Pittsburg, PA	Pocket	Minor	Moderate	Self or occupant	Spare battery ignited inside pants pocket. Second and third degree burns to leg.	https://www.ems1.com/weird-news/articles/72121048-3-men-suffer-serious-burns-from-e-cigarette-battery-fires/
Dec 2015	Clovis, CA	Pocket	Minor	Moderate	Self or occupant	E-cigarette in his pocket exploded and caught fire. "He's got pretty serious burns on his hand as he reached into his pocket to pull the cigarette out, and on his leg," Stirrup said. "It burned straight through his pants."	http://abc7news.com/news/explosive-lawsuit-could-light-up-e-cigarette-industry/1224224/
Dec 2015	Cashmere, WA	Use	Minor	Severe	Self or occupant	Ignited in hand while driving. Third degree burns forearm and elbow.	http://www.seattletimes.com/seattle-news/health/exploding-e-cigarettes-send-vapers-to-harborview-with-gruesome-injuries/
Dec 2015	Huntsville, AL	Pocket	No	Moderate	Self or occupant	Second and third degree burns to his legs and hands.	http://www.wsfa.com/story/34066138/huntsville-man-sues-after-e-cigarette-battery-explodes

E-cigarette incidents reviewed

Date	Location	Status	Fire beyond e-cig?	Injuries?	Extinguished	Notes	Source URL
Dec 2015	Chesterfield, VA	Charge	Moderate	None	Self or occupant	Six plug charging unit for vapor smoking devices caught fire on the floor in the office/storage area. The unit had five of the six ports in the charging unit being used. The charging device was melted and charred with minor charring/burned area in the carpet approximately 2 feet by 2 feet where the device was sitting. The manager/employees extinguished the fire prior to our arrival.	NFIRS 0036595
Dec 2015	Kelso, WA	Use	No	Severe	Self or occupant	Device exploded at mouth. Lost eight teeth and portion of lower palate. Burns to face, neck, chest and mouth.	http://tdn.com/news/local/kelso-man-sues-over-exploding-e-cigarette/article_91e46836-8146-5667-93bd-bb317e1441ce.html
Dec 2015	Pismo Beach, CA	Use	No	Moderate	Self or occupant	The e-cig exploded, igniting his right hand, and sending hot metal shrapnel and debris toward his face and hands. Multiple lacerations, a flash burn to his right eye, and experienced pain in his lungs from inhaling fumes and debris from the e-cigarette's exploded battery.	http://www.newtimeslo.com/news/13377/pismo-man-sues-after-hes-injured-by-exploding-ecigarette/



E-cigarette incidents reviewed							
Date	Location	Status	Fire beyond e-cig?	Injuries?	Extinguished	Notes	Source URL
Dec 2015	Seattle, WA	Use	No	Severe	Self or occupant	Device exploded in hand. Burns and lacerations to hand and arm.	http://www.seattletimes.com/seattle-news/health/exploding-e-cigarettes-send-vapers-to-harborview-with-gruesome-injuries/
Dec 2015	Pittsburg, PA	Pocket	Minor	Moderate	Self or occupant	Spare battery ignited inside pants pocket. Second and third degree burns to leg.	https://www.ems1.com/weird-news/articles/72121048-3-men-suffer-serious-burns-from-e-cigarette-battery-fires/
Dec 2015	Cowlitz County, WA	Use	No	Severe	Self or occupant	Device exploded at mouth. Lost teeth, burns to face, mouth.	http://www.seattletimes.com/seattle-news/vapers-sue-e-cigarette-makers-sellers-after-explosions-burns/
Dec 2015	Ogden, UT	Use	Major	Minor	Fire department	Device exploded in hand; user dropped the device and ran to sink to cool burn. Device ignited room fire. Fire department extinguished.	http://www.standard.net/fire/2015/12/25/christmas-house-fire-ogden-exploding-e-cigarette
Jan 2016	Orange, CA	Pocket	No	Moderate	Self or occupant	Battery exploded in pants pocket, causing second and third degree burns to leg.	http://www.nbclosangeles.com/news/local/e-cigarette-explode-lawsuit-battery-los-angeles.html
Jan 2016	Ladera Ranch, CA	Pocket	No	Moderate	Self or occupant	Battery exploded in pants pocket. First and second degree burns to leg.	http://www.cbsnews.com/news/e-cigarette-explodes-in-teens-pocket-at-work/
Jan 2016	Jackson, IN	Use	No	Moderate	Self or occupant	E-cig exploded while driving. Burns to face and hands. Lost control and crashed truck.	http://www.wbiw.com/local/archive/2016/01/e-cigarette-explodes-causing-crash-on-i-65.php

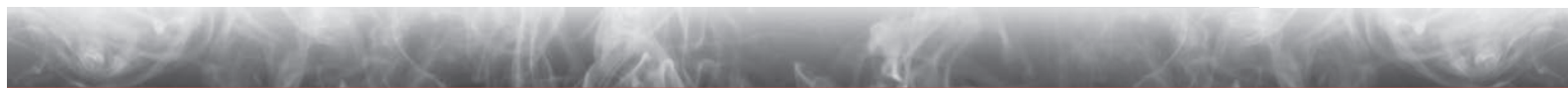


E-cigarette incidents reviewed

Date	Location	Status	Fire beyond e-cig?	Injuries?	Extinguished	Notes	Source URL
Jan 2016	Round Rock, TX	Use	Moderate	Severe	Self or occupant	Device exploded in hand. Severe burns on hand.	NFIRS 0107009
Jan 2016	Dallas, TX	Pocket	Minor	Moderate	Self or occupant	Device overheated and caught fire in pocket. Second and third degree burns to thigh.	http://dfw.cbslocal.com/2016/01/11/man-suffers-third-degree-burns-when-e-cigarette-battery-bursts/
Jan 2016	Seattle, WA	Use	No	Moderate	Self or occupant	Device exploded and burned face and hand.	http://www.seattletimes.com/seattle-news/health/exploding-e-cigarettes-send-vapers-to-harborview-with-gruesome-injuries/
Jan 2016	Pittsburg, PA	Pocket	Minor	Moderate	Self or occupant	Spare battery ignited inside pants pocket. Second and third degree burns to leg.	https://www.ems1.com/weird-news/articles/72121048-3-men-suffer-serious-burns-from-e-cigarette-battery-fires/
Jan 2016	Maui, HI	Storage	Minor	None	Self or occupant	In-flight fire on commercial flight from Honolulu to Maui. Aircraft landed safely in Maui. Two bags damaged by an e-cigarette in a passenger's checked luggage.	http://www.kitv.com/story/30961500/hawaiian-airlines-flight-makes-emergency-landing-after-e-cigarette-scare
Jan 2016	New Hanover County, NC	Use	No	Severe	Self or occupant	Electronic cigarette exploded in his face. He had over 50 stitches on his face, second and third degree burns on his chest, and lost an eye.	http://www.wect.com/story/31386547/e-cigarette-explodes-man-loses-eye



E-cigarette incidents reviewed							
Date	Location	Status	Fire beyond e-cig?	Injuries?	Extinguished	Notes	Source URL
Jan 2016	Aurora, CO	Pocket	Minor	Moderate	Self or occupant	Device ignited in pants pocket. Second and third degree burns on leg and hands.	http://www.denverpost.com/2016/01/29/colorado-vapers-burned-by-exploding-e-cigarettes/
Jan 2016	Englewood, FL	Use	Minor	Severe	Self or occupant	E-cigarette exploded in hand as victim was about to take a puff. Several teeth knocked out, jaw wired, burns on chest and legs.	http://www.winknews.com/2016/01/21/man-loses-teeth-jaw-wired-together-after-e-cig-explodes/
Jan 2016	Windsor, CA	Use	Minor	Severe	Self or occupant	Device exploded in mouth. Lost teeth. Burns and lacerations to face. Minor burns to floor coverings.	http://www.pressdemocrat.com/news/5144837-181/windsor-teen-badly-hurt-when
Jan 2016	Concord, NH	Pocket	Minor	Moderate	Self or occupant	Device exploded in pocket, tearing his pants and undergarments and burning his flesh.	http://www.unionleader.com/Man-whose-e-cigarette-exploded-sues-manufacturer-and-store
Jan 2016	Spokane, WA	Use	No	Severe	Self or occupant	Device exploded at mouth. Lost teeth, burns to face, neck, mouth and chest.	http://www.spokesman.com/stories/2016/oct/13/e-cig-explosions-prompt-lawsuits/
Jan 2016	Moulton-borough, NH	Pocket	No	Moderate	Self or occupant	E-cigarette exploded in pants pocket causing second- and third-degree burns.	http://www.unionleader.com/Man-whose-e-cigarette-exploded-sues-manufacturer-and-store
Jan 2016	Tilton, NH	Pocket	Minor	Severe	Self or occupant	Second and third degree burns on legs and hand after a vaporizer battery exploded in his pocket.	http://www.wmur.com/article/man-burned-when-vaporizer-battery-explodes/5208058



E-cigarette incidents reviewed

Date	Location	Status	Fire beyond e-cig?	Injuries?	Extinguished	Notes	Source URL
Jan 2016	Spokane, WA	Use	No	Severe	Self or occupant	Device exploded at mouth. Lost teeth, burns to face, neck, chest and mouth.	http://www.seattletimes.com/seattle-news/vapers-sue-e-cigarette-makers-sellers-after-explosions-burns/
Feb 2016	Cecil County, MD	Use	No	None	Self or occupant	User reported the battery was ejected from the e-cig and struck him in the cheek.	http://www.abc2news.com/news/in-focus/cecil-county-man-says-e-cigarette-exploded-in-his-face
Feb 2016	Missoula, MT	Use	Minor	Severe	Self or occupant	"E-cigarette recently exploded while he was using it, causing massive damage to his mouth. Lost four front teeth, top front teeth, and his lower front teeth are all going to need root canals, because there was just so much damage. Not only to the teeth, but it also blew out large chunks of jaw bone," said his dentist. "It blew a tooth out, an upper tooth out, and all the way through the mouth, and it took 22 stitches. It was like a bullet hole in the young man's face."	http://www.ktvh.com/2016/02/missoula-teenager-loses-teeth-to-exploding-e-cigarette
Feb 2016	Splendora, TX	Pocket	Moderate	Moderate	Self or occupant	Battery exploded in pocket while driving. Burns to leg. Car fire.	http://www.fox4news.com/news/texas/84728658-story



E-cigarette incidents reviewed							
Date	Location	Status	Fire beyond e-cig?	Injuries?	Extinguished	Notes	Source URL
Feb 2016	UT	Pocket	Minor	Moderate	Self or occupant	Ignited in pocket; second and third degree burns to leg and hand.	http://fox13now.com/2016/02/19/utah-man-burned-by-exploding-battery-urges-other-e-cigarette-users-to-be-cautious/
Feb 2016	Owensboro, KY	Pocket	Minor	Minor	Self or occupant	Device ignited in pants pocket. Second degree burns on leg.	http://www.valleynewslive.com/home/headlines/VIDEO-e-cigarette-explodes-in-mans-pants-369968501.html
Feb 2016	Rising Sun, MD	Use	No	Minor	Self or occupant	Device ignited while driving. Battery hit driver in face.	http://www.abc2news.com/news/in-focus/cecil-county-man-says-e-cigarette-exploded-in-his-face
Feb 2016	Surprise, AZ	Pocket	Minor	Moderate	Self or occupant	Batteries in pocket exploded while driving. Second and third degree burns on leg and hand.	http://fox13now.com/2016/02/19/utah-man-burned-by-exploding-battery-urges-other-e-cigarette-users-to-be-cautious/
Feb 2016	Southern UT	Pocket	No	Moderate	Self or occupant	Ignited in pocket; second and third degree burns in leg.	http://fox13now.com/2016/02/17/utah-man-says-he-suffered-third-degree-burns-after-e-cigarette-exploded-in-his-pocket/
Feb 2016	Lyndhurst, OH	Pocket	No	None	Self or occupant	Device exploded in pocket of lab coat.	http://www.newsnet5.com/news/local-news/cleveland-metro/e-cigarette-blows-up-at-lyndhurst-plastic-surgery-office



E-cigarette incidents reviewed

Date	Location	Status	Fire beyond e-cig?	Injuries?	Extinguished	Notes	Source URL
Feb 2016	Naples, FL	Use	Major	Moderate	Self or occupant	First and second degree burns on her face, neck and hands when she says her e-cigarette exploded in her face. Damage to teeth and gums. Fire ignited contents of car.	http://www.winknews.com/2016/02/26/woman-severely-burned-in-e-cigarette-explosion/
Feb 2016	Phoenix, AZ	Pocket	Minor	Moderate	Self or occupant	Device exploded in his pocket while driving. Second and third degree burns to legs and hands.	http://www.fox10phoenix.com/news/arizona-news/98062903-story
Feb 2016	Rochester, NH	Charge	Minor	None	Self or occupant	Device exploded while charging. Not using the proper charger.	http://www.wmur.com/article/electronic-cigarette-explodes-while-charging-in-rochester-apartment/5208926
Feb 2016	Scappoose, OR	Pocket	No	Moderate	Self or occupant	Battery exploded in pocket. Burned legs.	http://www.seattletimes.com/seattle-news/vapers-sue-e-cigarette-makers-sellers-after-explosions-burns/
Feb 2016	Castle Rock, CO	Pocket	Minor	Moderate	Self or occupant	Device ignited in pants pocket. Second and third degree burns on leg and hands.	http://kdvr.com/2016/02/28/castle-rock-teen-suffers-third-degree-burns-after-vaporizer-battery-explodes-in-his-pocket/
Mar 2016	Aurora, CO	Use	Minor	Severe	Self or occupant	Device exploded in face. Second and third degree burns to chest, neck, face, eyes.	http://denver.cbslocal.com/2016/03/03/vape-pen-explosion-victim-suffered-severe-burns/
Mar 2016	Fulton, MD	Pocket	Minor	Moderate	Self or occupant	Device ignited in pants pocket. Second and third degree burns on leg and hands.	http://www.abc2news.com/news/in-focus/howard-county-man-suffers-burns-after-e-cigarette-explodes-in-his-pocket

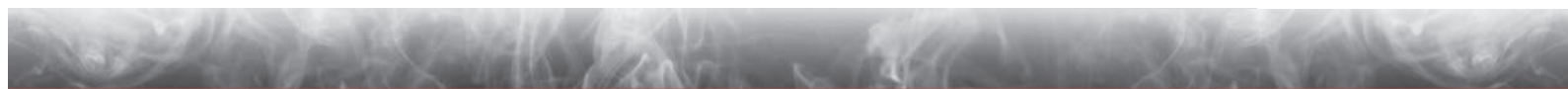


E-cigarette incidents reviewed							
Date	Location	Status	Fire beyond e-cig?	Injuries?	Extinguished	Notes	Source URL
Mar 2016	New Orleans, LA	Use	Minor	None	Self or occupant	Device exploded and burned face and hand. Rocketed around room, burning wall and floor at impact sites.	http://www.wwltv.com/news/local-man-says-e-cigarette-charger-exploded-on-him-caught-on-fire/66623741
Mar 2016	Arroyo Grande, CA	Use	No	Severe	Self or occupant	Device exploded near face. Burns to face.	http://www.sanluisobispo.com/news/local/article88047182.html
Mar 2016	Atlanta, GA	Storage	Minor	None	Self or occupant	Device ignited inside a carry-on bag on a Delta flight headed to St. Louis. Aircraft was still on the ground.	http://abcnews.go.com/US/delta-flight-delayed-cigarette-ignites-passengers-carry/story?id=37710018
Mar 2016	Costa Mesa, CA	Pocket	Minor	Moderate	Self or occupant	Upper leg and groin — first and second degree burns when spare battery exploded in pants pocket.	http://www.ocregister.com/articles/batteries-709292-coates-fire.html
Mar 2016	Kalamazoo, MI	Use	No	Moderate	Self or occupant	E-cig exploded in hand. Third degree burns on hand.	http://wwmt.com/news/local/kalamazoo-man-says-e-cig-exploded-in-his-hand-causing-burns
Mar 2016	Chico, CA	Not reported	Moderate	None	Self or occupant	Vape was cited as cause of accidental fire in bathroom of college dorm.	http://theorion.com/54656/news/students-evacuate-university-village/
Mar 2016	Keene, NH	Storage	Minor	None	Self or occupant	Device exploded on restaurant table and rocketed about hitting two customers and causing minor burns to clothing and door.	http://www.sentinel-source.com/news/local/e-cigarette-explodes-in-keene-restaurant/article_fa81c331-fba6-5e7d-9988-4042c7f9bf18.html



E-cigarette incidents reviewed

Date	Location	Status	Fire beyond e-cig?	Injuries?	Extinguished	Notes	Source URL
Apr 2016	NC	Charge	Moderate	None	Fire department	E-cig on charge exploded, flew across room, and ignited carpet and night stand.	NFIRS 0758
Apr 2016	Brooklyn, NY	Use	No	Severe	Self or occupant	A 14-year-old was blinded in one eye and burned on the face when a vape shop clerk in a Brooklyn mall foolishly plugged an e-cigarette into the wrong battery and it exploded.	http://www.nydailynews.com/new-york/boy-14-partially-blinded-exploding-e-cigarette-battery-article-1.2601552
Apr 2016	Phoenix, AZ	Pocket	Minor	Moderate	Self or occupant	Device ignited in pants pocket. Second and third degree burns on leg and hands.	http://www.fox10phoenix.com/news/arizona-news/118366996-story
Apr 2016	Queens, NY	Pocket	Minor	Moderate	Self or occupant	Spare battery ignited inside pants pocket. Second and third degree burns to leg.	http://www.nydailynews.com/new-york/e-cigarette-violently-explodes-pocket-queens-woman-article-1.2607505
Apr 2016	Spokane, WA	Pocket	No	Severe	Self or occupant	Device exploded in pocket. Burns to leg.	http://www.seattletimes.com/seattle-news/vapers-sue-e-cigarette-makers-sellers-after-explosions-burns/
Apr 2016	Idaho Falls, ID	Pocket	Minor	Moderate	Self or occupant	Device exploded in pocket. Burns to leg and hand.	http://www.localnews8.com/news/kifi-top-story/local-man-injured-from-e-cigarette_20160825070832821/58580069
Apr 2016	Brooklyn, NY	Use	No	Moderate	Self or occupant	Device exploded in hands. Burns to hands, face and eyes.	http://www.cbsnews.com/news/new-york-teen-badly-injured-by-exploding-e-cigarette/



E-cigarette incidents reviewed							
Date	Location	Status	Fire beyond e-cig?	Injuries?	Extinguished	Notes	Source URL
Apr 2016	Oklahoma City, OK	Pocket	Minor	Moderate	Self or occupant	Spare battery ignited inside pants pocket (coins reported in pocket). Second and third degree burns to leg.	http://ksn.com/2016/04/20/exploding-e-cigarette-injures-teen/
Apr 2016	Paso Robles, CA	Use	No	Severe	Self or occupant	Victim lost many of his bottom teeth and blew a small hole through his tongue.	https://pasoroblesdailynews.com/local-teen-hospitalized-after-e-cig-reportedly-explodes-during-use/53099/
Apr 2016	Oswego, IL	Storage	Major	None	Fire department	Device exploded in SUV center console while unattended. SUV and adjacent car destroyed in fire.	http://wgntv.com/2016/04/19/e-cigarette-may-be-to-blame-for-car-fire-in-suburban-wal-mart-parking-lot/
Apr 2016	Colorado Springs, CO	Pocket	Minor	Moderate	Self or occupant	Spare battery ignited inside pants pocket (keys and coins reported in pocket). Second and third degree burns to leg.	http://www.koaa.com/story/31801206/burned-man-shares-safety-warning-after-battery-explosion-caught-on-camera
Apr 2016	Chattahoochee Hills, GA	Pocket	Minor	Moderate	Self or occupant	Spare battery ignited inside pants pocket. Second and third degree burns to leg and hands.	http://www.fox5atlanta.com/news/132595190-story
Apr 2016	Chesterfield, VA	Storage	Minor	Minor	Self or occupant	Device exploded and rocketed across room. Second and third degree burns to hand. Burns to mattress and carpet.	http://www.nbc12.com/story/31850463/lithium-ion-battery-explosions-on-the-rise

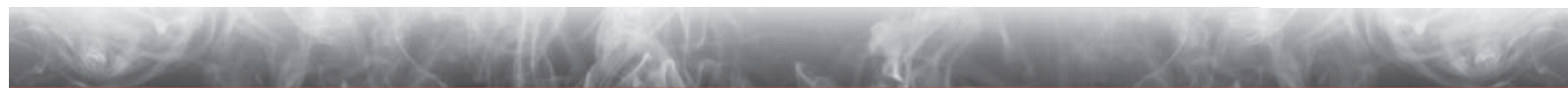


E-cigarette incidents reviewed

Date	Location	Status	Fire beyond e-cig?	Injuries?	Extinguished	Notes	Source URL
May 2016	St. Joseph, KS	Pocket	Minor	Minor	Self or occupant	Device ignited in pants pocket. First and second degree burns on leg and hands.	http://www.newspressnow.com/news/local_news/article_f60d5ddc-5f4e-5253-8eb0-84504e546ac2.html
May 2016	Hesperia, CA	Use	No	Moderate	Self or occupant	Device blew up causing "moderate facial burns."	http://www.vvng.com/man-airlifted-after-vaping-product-explodes-in-face/
May 2016	Albertville, AL	Pocket	Minor	Moderate	Self or occupant	Student was carrying e-cig in his pants pocket when the battery started heating up and burning him. This burning got so bad the student took it from his pocket and put in on a nearby desk. The e-cigarette battery then reportedly exploded, hit the wall and struck another student, burning him on the face and neck.	http://www.al.com/news/index.ssf/2016/05/albertville_high_school_studen.html
May 2016	Ogden, NY	Use	Minor	Moderate	Self or occupant	Device exploded when activated near mouth. Injuries to throat, face and hand.	http://www.wfaa.com/news/nation-now/ny-teen-hospitalized-after-his-ecigarette-explodes/170912533
May 2016	Albuquerque, NM	Pocket	Minor	Moderate	Self or occupant	Mod and two batteries in pocket ignited while driving. Second and third degree burns to left leg, thighs and buttocks.	Original story accessed November 2016 on www.kob.com (KOB4, Albuquerque, NM) has been removed or moved.



E-cigarette incidents reviewed							
Date	Location	Status	Fire beyond e-cig?	Injuries?	Extinguished	Notes	Source URL
May 2016	Maricopa, AZ	Use	Moderate	Moderate	Self or occupant	Device exploded in user's hands. Second and third degree burn injuries to hands, side and chest.	http://www.abc15.com/news/region-central-southern-az/maricopa/valley-teenager-injured-after-e-cig-explodes-faces-surgery-tomorrow-to-repair-burns
May 2016	Longboat Key, FL	Pocket	Minor	Moderate	Self or occupant	Spare battery for e-cig exploded in pocket causing second degree burns to thigh.	http://www.fox13news.com/news/local-news/139722872-story
May 2016	Irvine, CA	Storage	Moderate	Severe	Self or occupant	Device exploded after being placed on desk. Device and debris shot toward his face. Victim lost left eye. Burn injuries to hand and chest. Started a fire on the computer on the desk.	http://www.nbclosangeles.com/news/local/Orange-County-Man-Loses-Eye-in-E-Cig-Explosion-378894001.html
May 2016	Wentzville, MO	Pocket	Minor	Severe	Self or occupant	Spare battery for e-cig exploded in pocket causing second and third degree burns to thigh.	http://fox2now.com/2016/05/12/e-cig-users-report-severe-burns-after-devices-explode/
May 2016	Albany, NY	Use	Minor	Severe	Self or occupant	The e-cig exploded, went into his mouth and burned everything. Hands burned, some teeth knocked out, burned and lacerated tongue.	http://ktla.com/2016/05/19/vaporizer-explodes-in-ny-mans-face-rips-hole-in-his-tongue/
May 2016	Manomet, MA	Use	No	Moderate	Self or occupant	Burns to hands and fingers. No other information.	http://plymouth.wickedlocal.com/article/20160524/NEWS/160528120



E-cigarette incidents reviewed

Date	Location	Status	Fire beyond e-cig?	Injuries?	Extinguished	Notes	Source URL
Jun 2016	Tulsa, OK	Pocket	Minor	Moderate	Self or occupant	E-cig exploded in pocket. Third degree burns on thigh.	http://www.kjrh.com/news/local-news/doctors-at-hillcrest-medical-center-have-treated-four-patients-for-third-degree-burns-due-to-e-cigs
Jun 2016	Tustin, CA	Use	Minor	Severe	Self or occupant	E-cig exploded near face. Burns and cuts to face.	http://laist.com/2016/06/04/man_burned_after_e-cig_blow_up_in.php
Jun 2016	Kirkland, WA	Pocket	Minor	Moderate	Self or occupant	Battery exploded in pants pocket causing second degree burns to back of leg.	http://www.kiro7.com/news/local/kirkland-mans-vape-pen-battery-explodes/373773562
Jun 2016	Fairfield, OH	Use	No	Moderate	Self or occupant	E-cig exploded in hand. Lacerations and burns to hand. Ten stitches.	http://www.fox19.com/story/32179819/fairfield-man-says-e-cigarette-exploded-in-his-hand
Jun 2016	Muskogee, OK	Use	No	Moderate	Self or occupant	E-cig exploded near mouth. Disfigurement, temporary vision damage. This story is a report on a lawsuit; details and date not specified.	http://www.muskogeephoenix.com/news/man-sues-after-e-cigarette-allegedly-explodes-in-his-mouth/article_3751befe-320c-5757-96b3-0d3c0bb13de6.html
Jun 2016	Mobile, AL	Not reported	Unknown	Severe	Unknown	Story quotes medical center stating there have been seven incidents of battery burns in last six months.	http://wkrq.com/2016/06/08/e-cigarette-batteries-exploding/
Jun 2016	Lava Hot Springs, ID	Not reported	Minor	Moderate	Self or occupant	Device exploded causing lacerations to leg and foot, and burns to carpet.	http://idahostatejournal.com/news/local-teen-injured-when-vape-explodes/article_56bd34ac-543b-5648-9002-82a6c247c8f5.html



E-cigarette incidents reviewed							
Date	Location	Status	Fire beyond e-cig?	Injuries?	Extinguished	Notes	Source URL
Jun 2016	Chicago, IL	Storage	Minor	None	Self or occupant	Occupant noticed e-cig smoking on bed, picked it up and then dropped it on the floor because it was too hot. It then blew up and started a small fire that she extinguished with a bottle of water.	NFIRS 0429762
Jun 2016	Victor Valley, CA	Storage	Moderate	None	Fire department	Device exploded in parked car, setting interior on fire.	http://www.vvng.com/exploding-vape-blamed-for-victorville-car-fire/
Jun 2016	Carrollton, TX	Use	Large	Minor	Fire department	Occupant was using an e-cigarette and it started to spark and explode in his hand. The occupant threw the e-cigarette away to avoid getting more injured. The occupant stated that he went the bathroom to put cold water on his hand. When he returned to the room, a large part of the room was on fire. The e-cigarette was believed to have landed on a blanket and first ignited the blanket. Extinguishment by fire service personnel.	NFIRS 0005544
Jun 2016	Arlington, TX	Pocket	Minor	Moderate	Self or occupant	Battery exploded in pocket. Second and third degree burns to leg and hands.	http://dfw.cbslocal.com/2016/09/13/faulty-lithium-ion-batteries-raise-concerns-for-electronics-users/

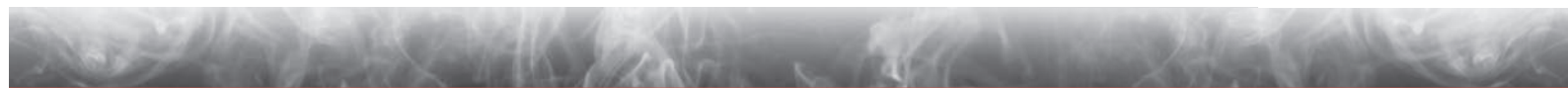


E-cigarette incidents reviewed

Date	Location	Status	Fire beyond e-cig?	Injuries?	Extinguished	Notes	Source URL
Jul 2016	Chelmsford, MA	Charge	Minor	Minor	Self or occupant	Battery exploded while being charged.	http://www.lowellsun.com/news/ci_30088610/man-burned-when-battery-e-cigarette-explodes
Jul 2016	Bay City, MI	Pocket	Minor	Moderate	Self or occupant	Device exploded in pocket. Burns to leg.	http://www.mlive.com/news/bay-city/index.ssf/2016/07/man_suffers_burn_when_vaporize.html
Jul 2016	Atlanta, GA	Pocket	No	Moderate	Self or occupant	Battery exploded in pocket. Second and third degree burns to leg and hand.	http://www.ajc.com/news/local/cigarette-battery-explodes-like-hand-grenade-pocket/LvP3W9w5xYyTZh5SPyF0TO/
Jul 2016	Bear, DE	Pocket	Minor	Moderate	Self or occupant	Device exploded in pocket. Burns to leg.	http://6abc.com/news/del-man-suing-over-e-cigarette-fire-/1435239/
Aug 2016	Idaho Falls, ID	Pocket	No	Moderate	Self or occupant	Device exploded in pocket. Burns to leg.	http://www.localnews8.com/news/kifi-top-story/local-man-injured-from-e-cigarette_20160825070832821/58580069
Sep 2016	Monmouth, NJ	Storage	Minor	None	Self or occupant	Device exploded in purse.	http://www.nj.com/monmouth/index.ssf/2016/09/watch_vape_battery_explodes_in_womans_purse_at_fre.html
Sep 2016	Birmingham, AL	Pocket	No	Moderate	Self or occupant	Battery exploded in pocket. Second and third degree burns to leg and hands.	http://wiat.com/2016/09/13/uab-patients-say-they-were-injured-by-e-cigarrettes/



E-cigarette incidents reviewed							
Date	Location	Status	Fire beyond e-cig?	Injuries?	Extinguished	Notes	Source URL
Sep 2016	Birmingham, AL	Use	No	Severe	Self or occupant	Fractured jaw and broken tooth.	http://wiat.com/2016/09/13/uab-patients-say-they-were-injured-by-e-cigarettes/
Sep 2016	Callaway County, MO	Storage	Moderate	None	Self or occupant	E-cig exploded in car. Dash and other internal components burned.	http://www.abc17news.com/news/e-cigarette-reportedly-explodes-starts-car-fire/81128840
Sep 2016	Haralson, GA	Pocket	Minor	Moderate	Self or occupant	Battery exploded in pocket, started two other batteries. Second and third degree burns to leg and hands.	http://www.ajc.com/news/local/cigarette-battery-explodes-like-hand-grenade-pocket/LvP3W9w5xYyTZh5SPyF0TO/
Sep 2016	Avondale, AZ	Pocket	No	Moderate	Self or occupant	Device exploded in pocket. Burns to leg and groin.	http://www.azfamily.com/story/33124980/e-cigarette-explodes-in-valley-mans-pocket
Sep 2016	Staten Island, NY	Storage	Minor	Minor	Self or occupant	Device exploded in purse. Hand burns while attempting to put the fire out.	http://www.silive.com/news/index.ssf/2016/09/explosion_at_castleton_corners.html
Oct 2016	Orlando, FL	Not reported	Minor	Moderate	Self or occupant	Device exploded and flew to passerby, who suffered burns to face, arm and leg.	http://www.orlandosentinel.com/news/breaking-news/os-teen-injured-universal-cigarette-20161001-story.html
Oct 2016	Phoenix, AZ	Pocket	Minor	Moderate	Self or occupant	Battery exploded in pocket. Burned legs, hair. Second degree burns.	http://www.fox10phoenix.com/news/arizona-news/209467116-story
Oct 2016	Seattle, WA	Storage	Moderate	None	Fire department	Device in checked baggage ignited bag inside airport handling facility before being placed on the plane.	http://komonews.com/news/local/bag-catches-fire-at-sea-tac-airport-due-to-vape-pen-charger



E-cigarette incidents reviewed

Date	Location	Status	Fire beyond e-cig?	Injuries?	Extinguished	Notes	Source URL
Oct 2016	Ketchikan, AK	Storage	No	None	Self or occupant	E-cig in back pack ignited during deplaning of passengers on an Alaska Airlines flight from Seattle to Anchorage. Minor damage to the backpack and contents; 12-inch square of carpet on the floor of the aircraft was replaced.	http://www.kcaw.org/2016/10/31/alaska-air-flight-grounded-e-cig-batteries-ignite/
Nov 2016	Stratford, CT	Use	No	Severe	Self or occupant	Device exploded at mouth. Lost teeth, burns to face, neck, chest and mouth.	http://connecticut.news12.com/story/34836094/fire-dept-issues-warning-after-e-cig-explodes-in-mans-mouth
Nov 2016	New York, NY	Pocket	No	Moderate	Self or occupant	Device exploded in pocket. Second and third degree burns on leg and hand.	http://www.aol.com/article/news/2016/11/25/horrific-video-shows-e-cigarette-burst-into-flames-in-mans-pock/21614390/
Dec 2016	Little Rock, AR	Storage	No	None	Self or occupant	Device ignited inside a carry-on bag on American flight. Aircraft diverted to Little Rock. Flight crew extinguished with water and extinguisher.	http://www.star-telegram.com/news/local/community/fort-worth/article121150273.html
Dec 2016	Petoskey, MI	Charge	Minor	None	Self or occupant	Device ignited while charging in bedroom. No other information reported. Fire department responded, but out on arrival.	http://www.9and10news.com/story/34065155/overheating-e-cigarette-prompts-firefighters-to-respond-to-emmet-co-condo



E-cigarette incidents reviewed							
Date	Location	Status	Fire beyond e-cig?	Injuries?	Extinguished	Notes	Source URL
Dec 2016	Fresno, CA	Pocket	No	Moderate	Self or occupant	Device exploded in pocket. Second and third degree burns on leg and hand.	http://www.aol.com/article/news/2016/12/22/e-cigarette-explosion-on-bus-leaves-man-with-third-degree-burns/21633284/
Dec 2016	Putnam, NY	Pocket	Minor	Moderate	Self or occupant	Device exploded in pocket. Second and third degree burns to right thigh.	http://newyork.cbslocal.com/2016/12/22/latest-e-cigarette-explosion/
Dec 2016	Lyndhurst, NJ	Charge	Minor	None	Fire department	Device exploded while being charged with improper charger.	http://www.northjersey.com/story/news/bergen/lyndhurst/2017/01/18/e-cigarette-explosions-prompt-reminder-lyndhurst-officials/96689642/