E-Cigarettes
An Exploding Market

by Adam J. Langino and Leslie M. Kroeger

Electronic cigarettes (or e-cigarettes) are battery-operated devices that are used to inhale aerosolized liquid and chemical flavorants, typically containing nicotine. E-cigarettes were first patented in 2003 and have been available for sale in the U.S. since 2007.[1] They are growing rapidly in popularity. By January 2014, there were 466 brands and 7,764 unique flavors.[2] The products now represent a billion-dollar industry in the U.S.[3] Retail and online sales were projected to reach $10 billion by 2017.[4] Prices for the devices range from $30 to over more than $300, with a corresponding range in battery size, liquid capacity, and vapor output.[5]

E-cigarette explosions were once thought to be rare.[6] For instance, the U.S. Fire Administration found only 25 explosions between January 2009 and August 2014. However, explosions are becoming much more common. According to a September 15, 2018, study in *Tobacco Control*, from 2015 to 2017 there were an estimated 2,035 e-cigarette explosion and burn injuries presenting to U.S. hospital emergency departments.[7]

E-cigarettes are often sold without instructions or warnings. A June 26, 2016, study published in *Tobacco Control* analyzed 125 e-cigarette orders representing 86 unique brands.[8] Product information came with just 60 percent of orders and just 38.4 percent included an instruction manual. Only 44.6 percent of products included a health warning, and some had unsupported claims, such as lack of secondhand smoke exposure.[9] Additionally, some products were leaking e-liquid and battery fluid on arrival.[10]

A typical e-cigarette has several parts. There is a plastic mouthpiece from which a user inhales the aerosolized chemicals. Adjacent to the mouthpiece is a cartridge or tank that holds the liquid chemical solution. To vaporize that solution, an electric heating element such as an atomizer or cartomizer abuts the tank. Typically, an e-cigarette incorporates a microprocessor to prevent overheating. Many devices have a switch that must be depressed to activate the heating element. Near the opposite end of the e-cigarette is placed a lithium-ion battery. Some e-cigarettes also have a light-emitting diode (LED) at one end to simulate the glow of a burning cigarette. Commonly, these parts are housed in a tube-like metal casing. The plastic mouthpiece and LED light cap both ends.

As stated by the U.S. Fire Administration:[11]

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.

Due to their unique design, many characterize an e-cigarette failure as a "flaming rocket."[12] When its battery explodes, the energy is forced to go in some combination of toward the user's mouthpiece and/or toward the LED cap. As such, the injuries can be severe.

In July 2017, the U.S. Fire Administration published a report wherein it reviewed 195 separate e-cigarette fire and explosion incidents in the U.S. between 2009 and 2016.[13] In 68 percent of these incidents, 133 acute injuries were reported.[14] Most of the incidents occurred when the e-cigarette was either in use, in a person's pocket, or being charged.[15] Many of the incidents resulted in severe injury, including hospitalization, loss of a body part, third-degree burns, or facial injuries.[16] The events tended to occur suddenly, and were accompanied by a loud noise, a flash of light, smoke, flames, and often vigorous ejection of the battery and other parts.[17]

According to data released by Tobacco Free Florida, e-cigarette use amongst youth rose dramatically in Florida in 2018.[18] The rate of

e-cigarette usage among youth between the ages of 11 and 17 increased by 60 percent between 2017 and 2018.[19] Nearly one in four high school students now report using e-cigarettes.[20] Use amongst all age groups is only expected to increase.

Florida has taken steps to regulate e-cigarette use. It defines an e-cigarette as a "*nicotine dispensing device*" meaning "any product that employs an electronic, chemical, or mechanical means to produce vapor from a nicotine product, including, but not limited to, an electronic cigarette, electronic cigar, electronic cigarillo, electronic pipe, or other similar device or product, any replacement cartridge for such device, and any other container of nicotine in a solution or other form intended to be used with or within an electronic cigarette, electronic cigar, electronic cigarillo, electronic pipe, or other similar device or product."[21] A retail license or permit is not required to sell e-cigarettes. They are not subject to any state excise tax. And, there are no regulations in place for e-cigarette packaging. However, use of electronic cigarettes is prohibited in the courthouses of Sixth Judicial Circuit and within 50 feet of entrances thereto,[22] in all firefighter employee places of employment,[23] and in licensed out-of-home caregiver homes and vehicles (when children present).[24]

At the outset of any potential e-cigarette injury claim, evidence preservation is key. The allegedly defective device should be retrieved and safely secured. As many e-cigarette failures start with its lithium-ion battery, special care should be used to ensure that the battery, its casing, and any metal fragments are preserved. Preservation letters should also be sent to the seller, manufacturer, and any other entity that participated in the design, sale, or market of the device. Many e-cigarettes, including their batteries, are manufactured overseas, particularly in China. Holding the local seller accountable may be your client's only avenue for recovery. Therefore, purchase receipts, credit card receipts, or any other evidence that would indicate where the e-cigarette was purchased should also be safe-guarded.

E-cigarette product liability claims are expensive and time-consuming to prosecute. After the evidence is safe-guarded, several experts will have to examine the device to determine how it failed and whether its failure was a legal cause of your client's injuries. Design engineers, lithium-ion battery experts, or even metallurgists may need to be consulted to determine if your client has a good faith basis for bringing a claim. Therefore, his or her injuries must be severe enough to outweigh the expected costs necessary for this type of product liability litigation.

As e-cigarette use gains in popularity, Florida consumers will increasingly suffer severe injuries in this growing, largely unregulated market. Florida practitioners are uniquely suited to attempt to make these products safer by holding accountable the companies that profit from their sale and use. Despite their difficulty and expense, e-cigarette product liability cases should not be avoided.

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