

ELECTRONIC CIGARETTES



Electronic cigarettes, or e-cigarettes, include e-pens, e-pipes, e-hookah, and e-cigars are known collectively as ENDS – electronic nicotine delivery systems. According to the FDA, e-cigarettes are devices that allow users to inhale an aerosol (vapor) containing nicotine or other substances. Unlike traditional cigarettes, e-cigarettes are generally battery-operated and use a heating element to heat e-liquid from a refillable cartridge, releasing a chemical-filled aerosol. These products have become more popular in recent years, so people want to know, are they a safer alternative to traditional cigarettes?

What Is an Electronic Cigarette?

Electronic cigarettes, or e-cigarettes, are battery-powered devices typically made of plastic or metal. E-cigarettes are often fashioned to look like a tobacco cigarette or cigar, and they are frequently used in place of smoking a tobacco product.

E-cigarettes vaporize liquid, which usually contains nicotine, but sometimes only produce flavored vapor without nicotine. Some smokers use e-cigarettes as a smoking-cessation tool because the amount of nicotine in the vaporized liquid can vary. According to the American Lung Association (ALA), approximately 500 brands and 7,700 flavors are available.

What Are in E-cigarettes?

The main component of e-cigarettes is the e-liquid contained in cartridges. To create an e-liquid, nicotine is extracted from tobacco and mixed with a base (usually propylene glycol), and may also include flavorings, colorings and other chemicals.

Following the 2016 announcement allowing FDA oversight of tobacco products, e-cigarette manufacturers had to register with FDA by August 8, 2016. Until FDA's evaluation is done, there are very few ways for anyone other than the manufacturers to know what chemicals are contained in e-liquids, or how e-cigarette use might affect health, whether in the short term or in the long run.

Nicotine

Nicotine is an addictive substance, and almost all e-cigarettes contain nicotine. Even some products that claim not to have any nicotine in them may still contain it. Multiple research studies have found that cartridges labeled as nicotine-free had traceable levels of nicotine. Experienced users learn how to use e-cigarettes in a way that increases their exposure to nicotine. Newer e-cigarette devices, especially "tank" styles, with higher voltage also deliver a greater concentration of nicotine. This matters because the more nicotine used, the greater the potential for addiction.

Other chemicals

We don't presently know what is in e-cigarettes. However, in initial lab tests the FDA found detectable levels of toxic cancer-causing chemicals, including an ingredient used in anti-freeze, in two leading brands of e-cigarettes and 18 various cartridges. A review of studies found that levels of toxins in e-cigarette aerosol varied considerably within and between brands. Another study found that aerosol from e-cigarettes with a higher voltage level contains more formaldehyde, another carcinogen with the potential to cause cancer.

Flavors in e-cigarettes are also a cause for concern. Not only are flavors used to target kids, but they may be harmful on their own. E-cigarette and flavor manufacturers and marketers may suggest that the flavor ingredients used in e-cigarettes are safe because they have FEMA GRAS™ status for use in food, but such statements are false and misleading. The reality is that FEMA GRAS™ status only applies to food, meaning it's safe to eat, and does not apply to inhaling through e-cigarettes.

Diacetyl, a buttery flavored chemical often added to food products such as popcorn, caramel, and dairy products, has also been found in some e-cigarettes with flavors. Diacetyl can cause a serious and irreversible lung disease commonly known as "popcorn lung."



Secondhand Emissions from E-cigarettes?

As public spaces increasingly become smoke free, anecdotal reports show some people are attempting to use e-cigarettes indoors and in public spaces which are smoke free, like bars, restaurants and even public transit.

While e-cigarettes do not contain smoke, they do expose others to secondhand emissions. Little is known about these emissions or the potential harm they can cause. Some studies have found carcinogens coming from those secondhand emissions. There is no evidence that shows e-cigarettes emissions are safe for non-users to inhale.

The American Lung Association supports prohibiting the use of e-cigarettes in worksites and public places, and including e-cigarettes under [smoke free laws](#) with other tobacco products. Currently, nine states and hundreds of communities have prohibited e-cigarette use in the same places where smoking is already prohibited.

Can E-cigarettes Help Someone Quit Smoking?

Many e-cigarette companies market their product as a tool to help smokers quit. However, the FDA's Center for Drug Evaluation and Research has not approved any e-cigarette as a safe or effective method to help smokers quit.

The U.S. Public Health Service has found that the seven therapies approved by the U.S. Food and Drug Administration in combination with individual, group or phone cessation counseling are the most effective way to help smokers quit. Until and unless the FDA approves a specific electronic nicotine delivery system or e-cigarette as safe and effective for use as a tobacco cessation aid, the American Lung Association does not support their use for cessation or any direct or implied claims that e-cigarettes help smokers quit.

Youth and E-cigarettes

Youth are using e-cigarettes at increasing and alarming rates. Between 2014 and 2015, CDC studies found e-cigarette use among high school students increased by 19%, with more teens now using e-cigarettes than cigarettes.

Bottom Line

E-cigarettes are a tobacco product. The American Lung Association remains concerned about their impact on the public health, as they are now the most commonly used tobacco product by youth. As FDA begins its oversight of these products, we will learn more about them and more safeguards will be put in place to protect the public health.

Smokers who wish to quit can learn more about ways that have been proven safe and effective in helping smokers quit at Lung.org/smoke-free.