

FALL 2017

## E-Cigarettes – A Hazard Up In Smoke?

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As e-cigarettes become more popular, employees are unclear on whether their employers have any company policy on vaping and few know whether that policy differs from the company's policy on tobacco smoking.

### **What are E-cigarettes?**

Electronic cigarettes, or e-cigarettes, include e-pens, e-pipes, e-hookah and e-cigars, and are known collectively as ENDS – electronic nicotine delivery systems. According to the FDA, e-cigarettes are devices that allow users to inhale an aerosol 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.

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.

### **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. Initial FDA lab tests conducted in 2009 found that cartridges labeled as nicotine-free had traceable levels of nicotine. Another 2014 study found that the amount of nicotine in e-liquid refills is often substantially different from the amount listed on the package. 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, a 2014 study found that aerosol from e-cigarettes with a higher voltage level contains more formaldehyde, another carcinogen with the potential to cause cancer. The findings are alarming, and underscores why the American Lung Association called so urgently for FDA oversight of these products.

### **Editor's Note:**

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*In order to ensure the contents of the newsletter are helpful and important to you, please feel free to send comments, suggestions and feedback to:*

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Flavors in e-cigarettes are also a cause for concern. 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."

### **Poisoning Concern**

Aside from concerns about e-cigarette use and emissions alone, data released by the Centers for Disease Control and Prevention (CDC) shows that calls to the nation's poison centers for e-cigarette exposure poisonings are rapidly increasing. One study found that while most calls involving e-cigarette liquid poisoning came from accidental ingestion of the e-cigarette or its liquid, about one-sixth of the calls related to someone inhaling these items. Exposure through the eye and the skin were also reported.

### **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. Two studies have found formaldehyde, benzene and tobacco-specific nitrosamines (all carcinogens) coming from those secondhand emissions. Other studies have shown that chemicals in the emissions contain formaldehyde, acetaldehyde and other potential toxins. The U.S. Surgeon General has concluded that e-cigarette aerosol is not harmless, and can contain harmful and potentially harmful chemicals, including nicotine.

### **What Else You Should Know About E-Cigs**

They can blow up. There were 134 reports of e-cigarette batteries overheating, catching fire, or exploding between 2009 and January 2016. Some people were seriously hurt. The new rules will allow FDA to review the safety of batteries and eventually take action to protect the public.

### **The Bottom Line**

Until more science is known about the potential hazards, scientific organizations such as AIHA, NIOSH, ASHRAE and WHO recommend including e-cigarettes in existing smoke free policies, thus limiting their use in the indoor environment. AISH further recommends:

For organizations and businesses that have smoking bans, especially those required by law, it would be advisable for them to update their bans to specifically include e-cigarettes in order to eliminate potential confusion among patrons as well as employees charged with enforcing those bans.

### **SOURCES:**

- American Lung Association
- WebMd.com
- Professional Safety - ASSE

