

# E-cigarettes Light Up the Flavor Business

Tobacco flavorists and experts see opportunity in the booming market of e-smokers.

Nicole Urbanowicz, Associate Editor



E-cigarettes giant blu Cigs has a marketing campaign highlighting flavor's key role in its blu eCigs product, deeming it "the first

electronic cigarette with the look, feel and flavor of the real thing." It says it is the only e-cigarette brand that uses 100% U.S.-made flavor ingredients such as Johnson Creek Original

**E**-cigarettes have the potential to create a breath of fresh air for the U.S. flavor industry, according to a range of experts.

"We think e-cigs are to tobacco what energy drinks are to the beverage industry," says Bonnie Herzog, managing director, beverage, tobacco and consumer research at Wells Fargo Securities LLC. "In other words, similar to energy drinks, e-cigs are profitable, growing quickly, gaining shelf space and consumer acceptance."

Touted as a healthier alternative to smoking tar-containing cigarettes (although some researchers debate this claim), e-cigarettes, which use atomizers powered by rechargeable or disposable lithium batteries that vaporize a liquid solution into an aerosol mist that's inhaled, have presented a new opportunity for flavor companies working in the tobacco space. In fact, flavorists say e-cigarettes use a larger flavor load than their traditional cigarette counterparts. Still, despite many industry watchers' strongly positive outlook on e-cigarettes and flavor, some challenges remain such as possible tighter regulation on the product. "If there is no prejudice shown against e-cigarettes versus tobacco in terms of regulatory authorities, there is no doubt that e-cigarettes within, let's say, 10 years would be a significant part of behavioral activities of vaping or smoking," says Roger Penn, director of Mane's tobacco business unit.

**"In the e-cigarette, you've got a heated system not as hot as a regular tobacco product; therefore, the actual flavor profile is different."**

Smoke Juice, which Johnson Creek exclusively produces for the company, although a company representative declined to provide further details on its agreement. Johnson Creek Original Smoke Juice contains USP-grade propylene glycol (not in Red Oak Smoke Juice recipe), USP-grade vegetable glycerin, USP-grade glycerol, USP-grade deionized water, USP-grade nicotine (except in its Zero Nicotine recipe) natural flavors, artificial flavors and USP-grade citric acid.

"[E-cigarettes offer] a very wide range of creative flavor capabilities for the regular tobacco flavorist versus working with tobacco-based products," says Penn. "Now you have more of an open, organoleptic opportunity in terms of putting in tobacco-like characteristics or tobacco direction flavor characteristics."

## Flavor is Key

A standard e-cigarette comprises a battery and a plastic cartridge that serves as a mouthpiece with a reservoir for liquid and an atomizer that vaporizes the liquid. Early e-cigarette prototypes were very basic and the original units were imported from China, where it was conceptualized in 2000 by Chinese pharmacist Hon Lik. Since then, Penn says there have been another two or three generations of e-cigarette designs created with different capabilities. Options are a disposable e-cigarette available in a blister pack or reusable e-cigarettes, which contain cartridges that can be replaced or refilled and are equivalent to anywhere from one to one and one-half packs of cigarettes. A typical e-cigarette liquid formulation contains nicotine, water, propylene glycol, glycerol and tobacco flavorings, and sometimes additional flavorings.

"The smoker is basically inhaling flavor ingredients that mimic the taste someone [would] get from smoking a cigarette," explains Susan To, a senior flavor chemist at Bell Flavor and Fragrances. "Basically the flavor should have a cigarette, tobacco-like taste."

When it comes to marketing natural versus artificial flavorings to consumers, To says, "I don't think they care; they care more about the taste."

## Unique Flavor Formulation Challenges

Other than tobacco flavors, many e-cigarette manufacturers offer a number of flavor options for their cartridges such as vanilla, cherry, menthol, java, piña colada and peach schnapps, which contain various nicotine levels. Mane, which is working with about 30 to 40 distributors or primary manufacturers in the e-cigarette business, says this new space brings new opportunities—and restrictions when working on formulations.

"In a regular tobacco product, you're obviously burning the mass of product that you are smoking," says Penn. "In an e-cigarette you are only heating the solution, so from a technical point of view, you've got to have volatile materials. Whereas in a cigarette, you have the natural components from the tobacco leaf, which have been vaporized in the smoke along with the flavors that may or may not have been used in the tobacco product."

"But in the e-cigarette, you've got a heated system not as hot as a regular tobacco product, so therefore the actual flavor profile is different," Penn continues. "In terms of the formulation of the flavor, you have restrictions with the solvent, for instance, because you've got to have a solvent; people can use glycerol or

propylene glycol. You have an aerosol generator, which is not tobacco—it's a solvent, so you have to have components of the flavoring that are soluble in the solvent system, which is also being used as the vaporizing material."

Penn continues, "It's a bit of a contradiction where it gives us a greater range of opportunities, but it's restricted to solvents that give the vapor activity. But you still have a much wider capability of putting in flavoring formulations where you've got a wider spectrum of flavor characteristics than a regular tobacco product."

To say the challenge is that cigarette companies have their own list of ingredients that they want formulators to use and the list is getting smaller. By comparison, she says there's no present restriction with e-cigarettes. "The amount of flavors [formulators] use is a lot. They are basically selling flavors." She adds, "I've been going to tobacco shows, and lately I've seen a lot of manufacturers that have both cigarettes and e-cigarettes in the show, so I think [the trend] is becoming bigger."

### E-Cigarette Expansion

Demand for e-cigarettes is growing, industry watchers say. Independent research firm Euromonitor has noted that amid increasing restrictions on tobacco consumption in developed markets and the loss of smoking populations in sizeable value-generating regions such as Western Europe, "The time is ripe for a non-tobacco cigarette and we predict that by 2050, non-tobacco cigarettes (including e-cigarettes) will be worth 4% of the value of total tobacco—including cigarettes and other tobacco products."

In the U.S., industry group Tobacco Vapor Electronic Cigarette Association estimates there are 2.5 million e-cigarette users, compared to the Centers for Disease Control and Prevention's estimate of 42 million daily traditional cigarette smokers in the U.S. Meanwhile, Murray Kessler, CEO of tobacco manufacturer Lorillard (which acquired blu Cigs last year), estimates the e-cigarette industry has about \$300 million in revenue currently at retail. Herzog, in one of her research notes, predicts this category could grow to \$1 billion in the next few years with attractive gross margins likely comparable to cigarettes.

"E-cigarettes' appeal stems from a variety of perceived advantages over traditional cigarettes, most commonly the perceptions that e-cigarettes are healthier, cheaper, and can be used almost anywhere," Herzog notes. "However, we do note the relative lack of regulation of e-cigarette products, concerns about health and safety due to unknown short- or long-term effects on individuals or the public health, and the risk posed particularly by products manufactured outside the U.S."

### Uncertain Regulatory Status

In the U.S., e-cigarettes fall under the watch of the U.S. Food and Drug Administration since they are regulated as tobacco products. Regulation is currently hazy, although many predict regulation could increase. To date, certain countries such as Australia and Brazil have banned the sale or use of e-cigarette products and regulators in a number of other countries and territories have restricted candylike sweet flavor cartridges. Some flavor houses have at one time or another paused work in this category due to concerns about certain formulations coming from overseas manufacturers.

"Early on, we were approached by several e-cigarette manufacturers to supply them with flavors that could be manufactured in the USA," says To. Rather than supply flavor to these groups

at the time, some companies have decided to wait for the FDA to make a ruling concerning electronic/vapor cigarettes.

Meanwhile, Mane's tobacco unit has worked on e-cigarette formulations during the past five years and Penn says consumer demand began to rapidly pick up in the past two to three years, especially in North America and Europe.

"In Italy, Spain and Switzerland, [consumers] have been looking at e-cigarettes as a smoking cessation product," says Penn.

However, the e-cigarettes regulatory debate has continued. Certain countries have banned marketers from specifically referring to the devices as a pharma-like nicotine replacement therapy product. And while proponent researchers and some physicians' organizations have cited their support of adults who switch to low-nicotine or nicotine-free e-cigs as an alternative

to traditional smoking, others disagree. The World Health Organization issued a statement in September 2008 saying there is no scientific evidence to back the health claims and that the agency "does not consider the electronic cigarette to be a legitimate nicotine replacement therapy."

Back in the U.S., e-cigarettes are now facing regulatory scrutiny at the state level, such as blocking sales to minors.

"We expect regulation of this category to increase," says Herzog. "And there are no federal or state excise taxes imposed on e-cigarettes (yet), helping to make them generally cheaper than conventional cigs."

Still, many agree the FDA's current stance on e-cigarettes is murky at best. The FDA said on April 25, 2011, that it will regulate e-cigarettes only as tobacco products, and not as drugs or devices, based on a federal court ruling.

"Obviously, tobacco products, depending upon which part of the world and which manufacturer of tobacco products, have very heavy regulatory requirements on what you can or cannot use," says Penn. "With e-cigarettes, it's still very much an open palette because the regulators either in North America—like the FDA—or in the European arena, it's still a [mostly] unregulated area. Obviously, as a supplier, we still have to maintain a very high level of attention to the safety of the flavors we're offering."

Health Canada issued a health advisory in March 2009 that warned against buying or using electronic smoking products, and European and U.S. regulators continue to review safety studies.

"The main concern I have is that there is not good science being entertained to judge the value of e-cigarettes and the safety of those products against conventional tobacco products," says Penn. "From a toxicological point of view, it depends on the quality of the material that you're using on the heated volatile products that you're getting in the vapor."

In the meantime, Euromonitor sees regulation as a mere blip in the process, saying that if any future legislation clamps down on e-cigarettes, which are not registered pharmaceuticals, tobacco companies with their pharma-approved devices and those companies with the financial clout to afford the approval process will be poised to pick up the slack.

"The one thing is that these cigarettes look like cigarettes... but from a toxicological point of view, from a product point of view, it's something from another planet," says Penn. "My approach is we will continue to support e-cigarette development."

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