Juul Liquids Contain Lung Irritants When Heated

A recent study of eight different e-liquids sold by Juul found that some of those products formed chemical irritants called acetals when heated.

Juul is one of the biggest names in the emerging e-cigarette market, but this new study furthers the growing concern that these products may also be incredibly harmful to our health. The lack of knowledge has not been helped by the lack of regulation, as these products don't require approval from the Food and Drug Administration (FDA). That freedom has allowed them to use compounds like vanillin, which is banned in regular cigarettes.

According to Hanno Erythropel, lead author of the study, this is bad news for consumers.

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"People often assume that these e-liquids are a final product once they are mixed…But the reactions create new molecules in the e-liquids, and it doesn't just happen in e-liquids from small vape shops, but also in those from the biggest manufacturers in the U.S…"

He goes on to say…

"…you are breathing this in. We didn't imagine people would be inhaling flavor compounds at the level they are now. We have very little information."

Acetals and Ingredients

Acetals are formed when you eliminate water from alcohol and aldehydes, chemicals used to artificially flavor or perfume

food. Exposing human cells to acetals causes human cells to exhibit an irritation response. Researchers noticed high acetal levels in one particular Juul flavor – creme brulee.

The creme brulee tested positive for high levels of vanillin acetals. Vanillin is a compound used for vanillin flavoring. It's also been banned for use in regular cigarettes. But e-cigarettes contain them. Sven-Eric Jordt at Duke University is a co-author of this study…

We were surprised that levels in Juul vapor were already close to safety limits for workplaces where vanillin is used, such as in bakeries and the flavor chemical industry…"

As the FDA has yet to implement proper regulations or require companies to list the ingredients in their products, it is likely there could be more unpleasant surprises in store for e-cigarette users.

The FDA Calls for Regulation

The FDA is trying to remedy this oversight. The administration had previously set 2022 as the deadline for e-cigarette companies to submit applications to keep selling their products. That has been changed to May of 2020, after a U.S. District Court judge in Maryland ruled that the FDA had been acting outside of its legal authority in allowing e-cigarette companies to operate without proper regulation.

Although previous FDA commissioner Scott Gottlieb expressed doubts that e-cigarette manufacturers would find it difficult to get their products approved, it's not very comforting to think that the only reason the FDA is enforcing rules strictly and in a timely fashion is that they are legally compelled to.

Sources:

- *Irritating Compounds Can Show Up In 'Vape Juice'* – NPR
- *Juul vaporizer: What is it, why are teens addicted and*

is it safe? – CNET

- *Juul users inhaling chemicals not listed* – YaleNews
- *Juul And Rivals, Given 10 Months To Submit FDA Application, Face Battle To Keep Selling E-Cigs* – Forbes
- *Federal Judge Rules FDA Acted Illegally in Delaying Required Review of E-Cigarettes, Cigars* – American Lung Association