

Smokeless cigarettes not as harmless as claimed, study says

 [theguardian.com/society/2018/mar/13/iqos-smokeless-cigarettes-not-as-harmless-as-claimed-study-says](https://www.theguardian.com/society/2018/mar/13/iqos-smokeless-cigarettes-not-as-harmless-as-claimed-study-says)

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The new “heat not burn” smokeless cigarette devices are not as harmless as their manufacturer claims, according to a new study.

iQOS – which stands for “I quit original smoking” – is made by [Philip Morris International](#), best known as the manufacturer of Marlboro cigarettes. PMI, the biggest tobacco company in the world, says its future is “smoke-free”, and it is investing in heated tobacco products, such as iQOS, and e-cigarettes, both of which it says are safer options.

iQOS devices are available in UK shops, and they have taken off dramatically in Japan, where they are said to have secured over 10% of the tobacco market. They are battery-operated devices into which is inserted a “heat stick” containing a tobacco plug. The heat produces a vapour rather than harmful smoke.

Philip Morris has published results of its own trials into the effects of the device but, say the authors of the study, from the University of California, “these studies appeared in a journal that may have a deficient review process, emphasising the need for independent evaluation of the iQOS”.

The [new research, published in the journal Tobacco Control](#), found that users speed up their “puff rate” in order to inhale more nicotine because the heat stick lasts for just six minutes, after which the device shuts off and needs to be recharged. That means they may potentially breathe in large amounts of vapour.

Although the heat stick did not produce a flame, they also found that the tobacco plug charred as a result of pyrolysis: thermal decomposition in the absence of oxygen. Charring was more extensive when thorough cleaning was not carried out after the use of each heat stick, suggesting that build-up of debris and fluid increases pyrolytic temperatures, say the researchers.

“iQOS is not strictly a ‘heat not burn’ tobacco product,” they write. “This study has shown that the iQOS system may not be as harm free as claimed, and also emphasises the urgent need for further safety testing as the popularity and user base of this product is growing rapidly.”

The device contains a plastic polymer film filter designed to cool the vapour. The study found that the heat was intense enough to melt the film even though it was not in direct contact with the heating element.

PMI said it welcomed independent testing of the product but disagreed with the findings. As the study had only just been published, the firm was still reviewing the results.

“Contrary to the authors’ conclusion the polymer-film of the filter does not melt in normal use nor does it release the named toxicant into the vapour,” it said in a statement. “The polymer filter in the HeatSticks is made from corn starch. The toxicant the authors measured is not used in any step of the manufacturing process, nor was it detected in emission tests conducted by PMI scientists, under realistic conditions, using methods similar to what the authors themselves used. Rather than melting, filter hardening and discolouration can result from the process of cooling the vapour, but this is not indicative of emission of toxicants.

“Studies using a variety of different puffing regimes showed no increase in the formation of toxicants, and clinical studies in which participants could use the product freely demonstrated reductions in exposure to toxicants approaching 95% of the reductions seen in smokers who quit for the duration of the study. Within the context of the totality of evidence on iQOS, we remain confident in our results to date, which demonstrate that iQOS is likely to be less harmful than cigarettes.”

• This article was amended on 14 March 2018. An earlier version said that iQOS devices weren’t available in UK shops, and that iQOS stood for “I quit ordinary smoking”. This has been corrected.

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