1. Introduction

There are calls for all tobacco and nicotine products to be regulated and taxed based on their position on a ‘continuum of risk’.

How should regulators classify novel tobacco products, including heated tobacco as it is sometimes called – ‘heat not burn’?

We undertook this study to investigate the claims made for two brands of heated tobacco product in comparison with combustible cigarette and an e-vapour product.

The data from the comparison of the chemical compounds and biological activity of the emissions and other factors enable us to make recommendations for regulation based on current knowledge.

2. Emissions from Heated Tobacco and E-Vapour Products

EVP vs Heated Tobacco as % of Cigarette smoke

Exhaled Air

Nicotine Products

Tobacco Products

Heated Tobacco A

Heated Tobacco B

Marlboro Gold

Puritane

This shows semi-quantitative GC/MS profiling of gas phase emissions from two different brands of heated tobacco compared to a conventional cigarette and an E-Vapour product.

One of the heated tobacco products had a similar gas phase profile to cigarette smoke. The other showed reduced levels of emissions, but many compounds found in cigarette smoke were still present.

The EVP emission profile shows virtual absence of impurities.

Levels of Harmful and Potentially Harmful Compounds (HPHCs) in all 3 products were reduced compared with a cigarette.

One of the heated tobacco products reduced HPHCs by between 20% and 70%; the other gave reductions between 85% and 99%.

At this level only formaldehyde is visible in the emissions from the EVP.

3. Comparison of E-Vapour with Heated tobacco products

EVPs do not contain tobacco and hence do not have the same health risk profile as cigarettes. This data from our study indicates that they are much safer.

As at first sight the absolute reduction in HPHCs in heated tobacco looks impressive, when compared with the EVP it’s evident that many HPHCs associated with smoking, which are absent in the EVP, are produced by heated tobacco. Abstainers are at much higher levels than in EVP.

4. Ongoing Developments in E-Vapour Products

New technology developments in E-Vapour products - push for simplification and more阖quantum.

5. Consumer Insights

The data from our studies is well known, but the conclusion that - high-voltage EC may expose users to levels of carcinogenic compounds – has receive much debate.

Data obtained by Emptih [4] shows that power and vapour can be increased without a proportional increase in aldehydes.

6. Conclusions - Implications for Regulation

• ‘Heated tobacco’ is a term used for products that claim to primarily heat rather than burn tobacco. We found major differences between different products within this category in relation to emissions, in vitro toxicology and consumer insights.

• We found that emissions from both heated tobacco products contained many of the compounds found in cigarette smoke.

• When comparing heated tobacco products with EVPs there was a difference of orders of magnitude between the emissions profiles, with low compounds detected in the vapour and an absence of toxicological indications in EVPs. Consumers preferred EVPs in all aspects except satisfaction.

• This data does not justify a categorical wide differentiation between cigarettes and heated tobacco in terms of regulation, indoor use or excise.

• We are continuing to see improvements in E-Vapour products and believe that standardisation will result in these improvements being applied across the whole sector.

• Our evidence supports the case for regulating nicotine products, including E-Vapour products, differently from tobacco products.

References