A cross-category puffing topography, mouth level exposure and consumption study among Italian users of tobacco and nicotine products

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OBJECTIVE

To conduct an ‘actual use’ study with the aim of understanding consumer behaviour relating to Tobacco Heating Products (THPs) (HT and THS2.4T) and an e-cigarette, compared with a conventional tobacco cigarette (C651). A central location test was conducted to measure puffing topography and mouth level exposure (MLE) to nicotine and NDPM/ACM.

A secondary objective of this study was to verify the machine puffing regimes (e.g. S5/S3/S0) used in the laboratory for toxicological/emissions testing

RESULTS – PUFFING BEHAVIOUR

<table>
<thead>
<tr>
<th>User group</th>
<th>Product</th>
<th>Puff number (n)</th>
<th>Mean puffs/min</th>
<th>Mean puff volume (μl)</th>
<th>Mean puff duration (s)</th>
<th>Mean puff interval (s)</th>
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</thead>
<tbody>
<tr>
<td>1 (C651)</td>
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<tr>
<td>2 (THS2.4T)</td>
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<tr>
<td>3 (HT)</td>
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</tbody>
</table>

RESULTS – MOUTH LEVEL EXPOSURE

<table>
<thead>
<tr>
<th>User group</th>
<th>Product</th>
<th>MLE to NDPM (mg/day)</th>
<th>MLE to ACM (mg/day)</th>
<th>MLE to eliquid (mg/day)</th>
<th>MLE to nicotine (mg/day)</th>
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RESULTS – CONSUMPTION

- Average daily consumption of both THPs was significantly lower than the test cigarette.
- Average consumption of the e-cigarette (HT/0.1T) was 1.5ml (μl) of eliquid per day across both user groups.

STUDY PRODUCTS

- Cigarette: Lucky Strike Regular, British American Tobacco
- THS2.4T: Tobacco heating product: GLO and Kent Nicotinoids (Bright Tobacco)
- HT: Tobacco heating product: IQOS and Marlboro Heatsheets (Essense), Philip Morris International
- E-cigarette: Yosigo Prototype and e-liquid cartridges

STUDY POPULATION

- Groups 1 (n=50) & 3 (n=52): Adult (25-64) Italian smokers of 7mg ISO cigarettes (>7 days for >7 years)
- Group 2 (n=50): Adult (25-64) Italian vapers & dual users (>1 day for >6 months)

CONCLUSIONS

- MLE to NDPM was significantly lower than the test cigarette for both THPs. MLE to nicotine was significantly lower than the cigarette for all other study products.
- Overall consumption of the THPs was lower than that of the conventional cigarette.
- This data supports the reduced risk potential of novel tobacco and nicotine products.
- Generally, the machine puffing regimes used for pre-clinical laboratory measurements were broadly supported by the puffing topography measurements, despite the differences between products.