**Introduction and Objectives**

Philip Morris International’s PMI heat-not-burn Tobacco Heating System 2.2 (THS 2.2) uses an electronically controlled heating mechanism to precisely heat specially designed tobacco sticks at operating temperatures well below combustion. As a result, the generated aerosol is composed of mainly water, glycerin and nicotine while the levels of harmful and potentially harmful constituents are significantly decreased compared to cigarettes smoke. In order to address public health concerns about possible presence of publishing substances during indoor use of heated tobacco products which may result in exposure concern in potential bystanders, a study was designed using a dedicated controlled room (AIR room, figure 1) and applying ventilation conditions recommended to simulate environment representation for residential buildings with natural ventilations (“Residential category III”). (EN 15251:2007).

**Methods**

- **Experiments executed in an environmentally controlled room (AIR, Figure 1)**
- **Ventilation at 0.5 air changes/h (EN 15251:2007)**
- **Tobacco heating system HNS (Figure 2)**
- **Adult registered IQS users for the THS 2.2 session and cigarette smokers for the Methane Gas session executed an external comparison set.**
- **THS 2.2 under predefined conditions (2h, 6 sticks/h, 12 sticks in total) and under consumption with no rest break (2h, “ad libitum”).**
- **Positive control: Methane Gas (2L, 6 cigarettes/h, 12 cigarettes in total)**
- **Background sessions (2h) with the same volunteers as for the previous sessions before each THS 2.2 or Methane Gas session.**
- **Three replicates of each simulation.**
- **Indoor air concentrations of twenty-three constituents determined (Table 1).**

**Results and Discussion**

The study evaluated the indoor impact of THS 2.2 under typical low indoor ventilation conditions for a residential environment:
- **High consumption rates for THS 2.2 and cigarettes (6 sticks/h, total of 12 sticks for 2 hours), at Methane Gas 8-15 sticks for 2 hours**
- **Low ventilation rates (0.5 air changes/h, EN15251:2007).**

The results are summarised in Table 2.

The outcomes of the current study were consistent with those for the other simulated environments (“Residential category I”, “Office” and “Hospitality”, Mitova et al., 2016; Table 2).

**Conclusions**

**Limitations**

- Low ventilation rates were used to simulate the indoor environment (0.5 air changes/h). In the former studies, ventilation rates ranged from 0.6 to 1.2 air changes/h.
- Although specific constituents were measured (i.e. THS 2.2 vs background, cigarette vs background, THS 2.2 vs cigarette), the results were not directly comparable with ventilation rates used in previous studies.
- The current study was performed in a dedicated room (AIR) under controlled ventilation conditions.

**Abbreviations**

- AIR: Ambient conditions - Office, Laboratory, Classroom, Roadside, Residential
- EN: European Norms
- EU: European Community
- ISO: International standardisation organisation
- IAQ: Indoor air quality
- JRC: Joint Research Centre
- WHO: World Health Organisation
- PMI: Philip Morris International
- THS: Heat-not-burn System
- PM: Particulate Matter