

Author's Accepted Manuscript

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www.elsevier.com/locate/talanta

PII: S0039-9140(16)30340-X
DOI: <http://dx.doi.org/10.1016/j.talanta.2016.05.022>
Reference: TAL16572

To appear in: *Talanta*

Received date: 7 March 2016
Revised date: 4 May 2016
Accepted date: 8 May 2016

Cite this article as: Nicolas Mottier, Manuel Tharin, Camille Cluse, Jean-René Crudo, María Gómez Lueso, Catherine G. Goujon-Ginglinger, Anne Jaquier, Maya I. Mitova, Emmanuel G.-R. Rouget, Mathieu Schaller and Jennifer Solioz Validation of selected analytical methods using accuracy profiles to assess the impact of a Tobacco Heating System on indoor air quality, *Talanta*, <http://dx.doi.org/10.1016/j.talanta.2016.05.022>

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Abstract

Studies in environmental controlled rooms have been used over the years to assess the impact of environmental tobacco smoke on indoor air quality. As new tobacco products are developed, it is important to determine their impact on air quality when used indoors. Before such an assessment can take place it is essential that the analytical methods used to assess indoor air quality are validated and shown to be fit for their intended purpose. Consequently, for this assessment, an environmentally controlled room was built and seven analytical methods, representing eighteen analytes, were validated. The validations were carried out with smoking machines using a matrix-based approach applying the accuracy profile procedure. The performances of the methods were compared for all three matrices under investigation: background air samples, the environmental aerosol of Tobacco Heating System THS 2.2, a heat-not-burn tobacco product developed by Philip Morris International, and the environmental tobacco smoke of a cigarette. The environmental aerosol generated by the THS 2.2 device did not have any appreciable impact on the performances of the methods. The comparison between the background and THS 2.2 environmental aerosol samples generated by smoking machines showed that only five compounds were higher when THS 2.2 was used in the environmentally controlled room. Regarding environmental tobacco smoke from cigarettes, the yields of all analytes were clearly above those obtained with the other two air sample types.

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