

## Does e-cigarette consumption cause passive vaping?

### Journal Article <sup>1)</sup>

Electronic cigarette consumption ('vaping') is marketed as an alternative to conventional tobacco smoking. Technically, a mixture of chemicals containing carrier liquids, flavors, and optionally nicotine is vaporized and inhaled. The present study aims at the determination of the release of volatile organic compounds (VOC) and (ultra)fine particles (FP/UFP) from an e-cigarette under near-to-real-use conditions in an 8-m<sup>3</sup> emission test chamber. Furthermore, the inhaled mixture is analyzed in small chambers. An increase in FP/UFP and VOC could be determined after the use of the e-cigarette. Prominent components in the gas-phase are 1,2-propanediol, 1,2,3-propanetriol, diacetyl, flavorings, and traces of nicotine. As a consequence, 'passive vaping' must be expected from the consumption of e-cigarettes. Furthermore, the inhaled aerosol undergoes changes in the human lung that is assumed to be attributed to deposition and evaporation.

### PRACTICAL IMPLICATIONS:

The consumption of e-cigarettes marks a new source for chemical and aerosol exposure in the indoor environment. To evaluate the impact of e-cigarettes on indoor air quality and to estimate the possible effect of passive vaping, information about the chemical characteristics of the released vapor is needed.

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### Conclusions

The consumption of e-cigarettes causes emissions of aerosols and VOCs, such as 1,2-propanediol, flavoring substances, and nicotine, into indoor air. During inhalation of e-cigarette vapor, the aerosol size distribution alters in the human lung and leads to an exhalation of smaller particles. This effect is caused by the evaporation of the liquid particles in the lung and also in the environment after exhalation. The quantity of the inhaled vapor could be observed to depend on the "liquid" delivery system of the e-cigarette in use.

Overall, the e-cigarette is a new source of VOCs and ultrafine/fine particles in the indoor environment.

Therefore, the question of "passive vaping" can be answered in the affirmative. However, with regard to a health-related evaluation of e-cigarette consumption, the impact of vapor inhalation into the human lung should be of primary concern.

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[Air Pollution, Indoor, Category-Air Quality, Category-Health and Safety, E-Cigarette, ETS, Folder-E-Cigs, Leans-Negative, Leans-Neutral, Nicotine, RESEARCH, SHS, toxicity](#)

<sup>1)</sup>

Schripp , et al. (2013), Does e-cigarette consumption cause passive vaping?, <http://onlinelibrary.wiley.com/doi/10.1111/j.1600-0668.2012.00792.x/abstract;jsessionid=C4E067652506FBF01483F7C298696177.f04t01> accessed:

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