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# TESTING OFF-NOTES IN ADHESIVE PRODUCTS BY MEANS OF GC-SNIFFING-MS TECHNIQUE

Odours of adhesive materials are a relevant issue in the market success of several products. Consumers are becoming increasingly demanding for goods that do not pose any potential threat to their health, that fulfil sustainability requirements, and that are sensory gratifying. Hence, a positive odour perception is a fundamental component in the branding of consumer goods. Undesired off-notes can be released during all stages of product development, from manufacturing, processing and storage of raw materials, to the finished product. There are several techniques that allow determining the odour of one specific material/product and predict how it can interfere with the consumer perception of the final product. Sensory techniques based on trained or naïve human panels have usually been applied to measure the overall odour characteristics of a wide range of products, in terms of its intensity, hedonic tone, and character. These parameters are very relevant to understand and improve the final affective perception of the consumer, but are not that informative on the ultimate causes of a certain odour.

More recently, integrative chemical/sensory analytical techniques have been developed to identify which volatile organic compounds (VOCs) contribute to a product's odour. Gas chromatography and mass spectrometry linked to a sniffing port (GC-Sniffing-MS) is a very powerful tool due to its high sensitivity and capacity to perform both chemical profiling (to know the chemistry behind an odour) and a sensory characterization (to know the effects of this chemistry on perception). In this paper, we illustrate the usefulness of the GC-Sniffing-MS approach to study and compare the odour characteristics of two different solid adhesives used in the manufacture of fast-moving consumer goods. The obtained results showed that there were some differences in the chemical profile and sensory perception among the tested samples. Aldehydes were the main contributors to the overall adhesives' odour. The identified aldehydes are usually related to pleasant odours. Esters and organic acids were also identified as potential contributors, associated with a negative hedonic tone. Additionally, ketones and other non-identified compounds were also found to contribute to the products' odour adding complexity to the final sensory perception. This data allowed the characterization of potential off-notes and the identification of the specific volatile organic compounds that were causing them. Thanks to this information, appropriate measures on optimizing the production process could be taken, considering the potential sensory impact as an additional decision factor.

**Key words:** adhesives, GC-Sniffing-MS, odours, off-notes, VOCs