



Analysis of Fragrance and Allergens using an Agilent J&W FactorFour VF-WAXms GC Column

Application Note

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Introduction

Allergic reactions to perfumes and the individual components responsible for these reactions have been studied since the late 1970s. The fragrance mix used internationally to diagnose fragrance-allergic patients includes eight ingredients: oak moss extract, iso-eugenol, eugenol, cinnamal, hydroxy citronellal, geraniol, cinnamyl alcohol and amyl cinnamal. Analysis of this particular fragrance mix on a VF-WAXms reveals the presence of a number of these common allergens. The MS compatibility of VF-WAXms is clearly evident, especially in the low bleed profile around 250 °C , as shown in Figure 1 on page 2.



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Conditions

Technique: GC-MS
Column: VF-WAXms
30 m x 0.25 mm x 0.25 µm (part number CP9205)
Oven: 100 °C to 250 °C with 10 °C / min
Carrier Gas: Helium, 1.0 mL/min
Injector: Split 1:30, T = 250 °C
Detector: GC-MS Iontrap
Trap: 200 °C
Manifold: 60 °C
Sample Size: 0.1 µL
Sample: Fragrances mixture (500 ppm)

Peak Identification:

1.	<i>Linalool</i>	14.	<i>Eugenol</i>
2.	<i>Methyl heptin carbonate</i>	15.	<i>Amyl cinnamyl aldehyde</i>
3.	<i>Phenyl acetaldehyde</i>	16.	<i>Anisic alcohol</i>
4.	<i>Methyl chavicol</i>	17.	<i>Cinnamyl alcohol</i>
5.	<i>Methyl octin carbonate</i>	18.	<i>Farnesol isomer I + II</i>
6.	<i>Citronellol</i>	19.	<i>Farnesol isomer III</i>
7.	<i>Geraniol</i>	20.	<i>iso-Eugenol</i>
8.	<i>Methyl gamma ionone</i>	21.	<i>Hexyl cinnamic aldehyde</i>
9.	<i>Benzyl alcohol</i>	22.	<i>Lyral (4,4-isomer)</i>
10.	<i>Cinnamaldehyde</i>	23.	<i>Coumarine</i>
11.	<i>Hydroxy citronellal</i>	24.	<i>Amyl cinnamic alcohol</i>
12.	<i>Methyl eugenol</i>	25.	<i>Benzyl benzoate</i>
13.	<i>Lilial</i>	26.	<i>Benzyl salicylate</i>
		27.	<i>Benzyl cinnamate</i>

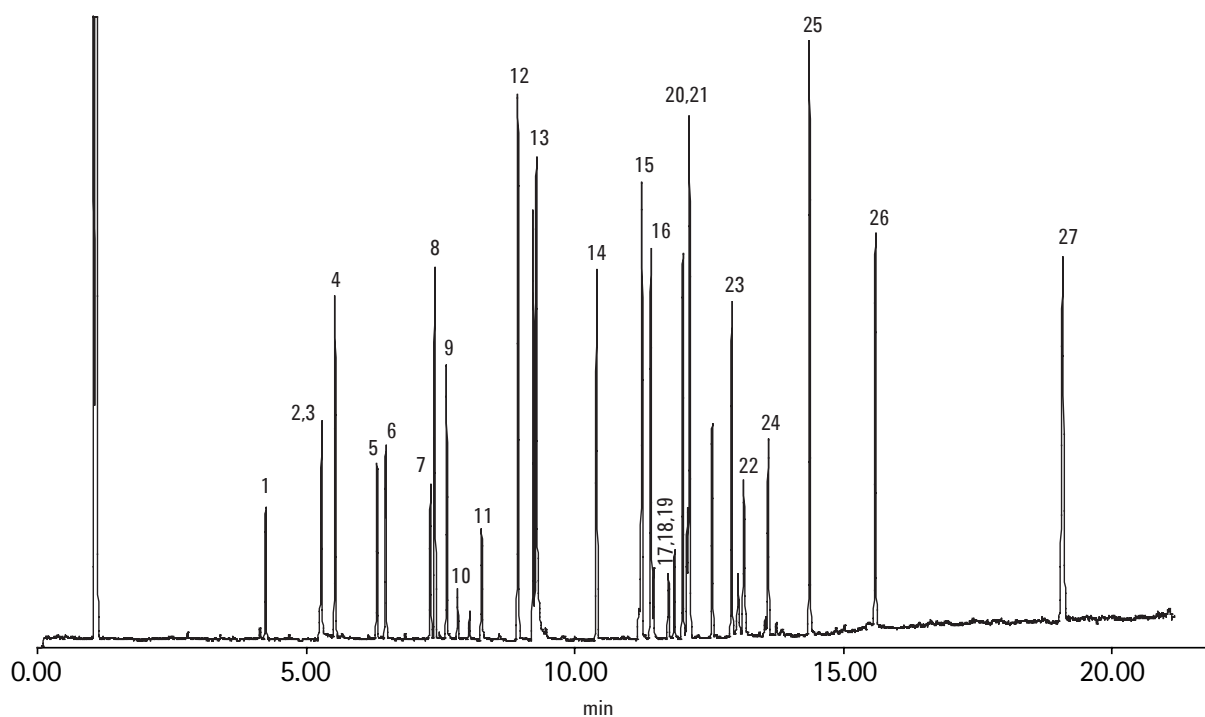


Figure 1. Analysis of fragrance and allergens using VF-WAXms GC columns

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