

Application Data Sheet

Flavor/Fragrance Analysis by Fast-GC/MS

[MS]

Interface temperature : 250°C Ion source temperature : 200°C

Measurement mode

Emission current

Mass range

Event time



Introduction

Fast-GC/MS is an effective way to improve laboratory productivity by shortening analysis cycle times. Fast-GC/MS methods require a system with a high-performance AFC controller that is compatible with narrow bore capillary columns and high-speed data acquisition technology. Shimadzu GCMS systems offer the high-performance levels necessary to satisfy these requirements. This Application Datasheet shows results from analyzing lavender oil using conventional methods and Fast-GC/MS methods.

Analysis Conditions

Conventional-GC/MS

GC-MS	:GCMS-QP2010 Ultra
Column	:Rtx-5MS (30 mL. x 0.32 mmI.D., 0.25 μm)
Glass insert	: Split insert with deactivated glass wool (P/N: 225-20803-01)

GCMS

Gas Chromatograph Mass Spectrometer

[GC]

Vaporization chamb	er temperature : 250°C
Column oven tempe	erature: 50 °C(0 min) -> (3 °C /min) -> 250 °C (10 min)
Injection mode	: Split
Carrier gas	: Helium
Control mode	:Linear velocity (47.2 cm/sec)
Split ratio	: 100
Injection quantity	:2.0 μL

Fast-GC/MS

GC-MS	:GCMS-QP2010 Ultra
Column	:Rtx-5 (10 mL. x 0.10 mmI.D., 0.1 μm)
Glass insert	: Split insert with deactivated glass wool (P/N: 225-20803-01)

[GC]

Vaporization chamber temperature : 250° C Column oven temperature : 70° C(1 m

: 70 °C(1 min) -> (25 °C /min) -> 180 °C
-> (50 °C /min) -> 280 °C(1 min)

Injection mode: SplitCarrier gas: HeliumControl mode:Linear velocity (45.0 cm/sec)Split ratio:1800Injection quantity:1.0 μL

[MS]Interface temperature: 250° CIon source temperature: 200° CMeasurement mode: ScanMass range: m/z 40-400Event time: 0.05 secEmission current: 150 µA (high sensitivity)

: Scan

: *m/z* 40-400

: 150 µA (high sensitivity)

: 0.3 sec

Results

Fast-GC/MS provided separation patterns similar to results from conventional methods, but analysis times were 1/7 of conventional analysis times.



Fig. 1: Total Ion Current Chromatograms Obtained Using Conventional Method (upper) and Fast-GC/MS Method (lower)

ID	Compound Name	ID	Compound Name	ID	Compound Name
1	alpha-Pinene	8	gamma-Terpinene	14	Bornyl acetate
2	Camphene	9	Linalool	15	Neryl acetate
3	beta-Pinene	10	Camphor	16	(Z)-beta-Farnesene
4	Myrcene	11	Isoborneol	17	Germacrene D
5	Cymene	12	alpha-Terpineol	18	beta-Bisabolene
6	Limonene	13	Linalyl acetate	19	Caryophyllene oxide
7	Eucalyptol				



SHIMADZU CORPORATION. International Marketing Division 3. Kanda-Nishikicho 1-chome, Chiyoda-ku, Tokyo 101-8448, Japan Phone: 81(3)3219-5641 Fax. 81(3)3219-5710 URL http://www.shimadzu.com For Research Use Only. Not for use in diagnostic procedures. Shimadzu Corporation ("Shimadzu") reserves all rights including copyright in this publication. Shimadzu does not assume any responsibility or liability for any damage, whether direct or indirect, relating to, or arising out of the use of this publication. This publication is based upon the information available to Shimadzu on or before the date of publication, and subject to change without notice. First Edition: October 2011