

Application Note No. 079

The Thermal Desorption of Chocolate Flavoured Powder using Difficult Matrix Introduction (DMI)

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- *Direct desorption of analytes from sample matrix to column*
- *Eliminates the need for sample preparation*
- *May be automated using the Focus DTD*

Instrumentation

- ATASGL Optic 2-200 programmable injector
- Agilent 5890 gas chromatograph with 5971 mass selective detector
- SGE CO₂ cryotrap

Principles

- Place 0.5-1 mg of cocoa powder in a microvial, place in fritted liner in injector and start run
- Liner is firstly swept and the cryotrap is turned-on
- The analytes are thermally desorbed under static flow conditions
- The analytes are swept onto the column with a small split flow and trapped
- The cryotrap is turned off and the separation and analysis is performed

Chromatograms

Abundance

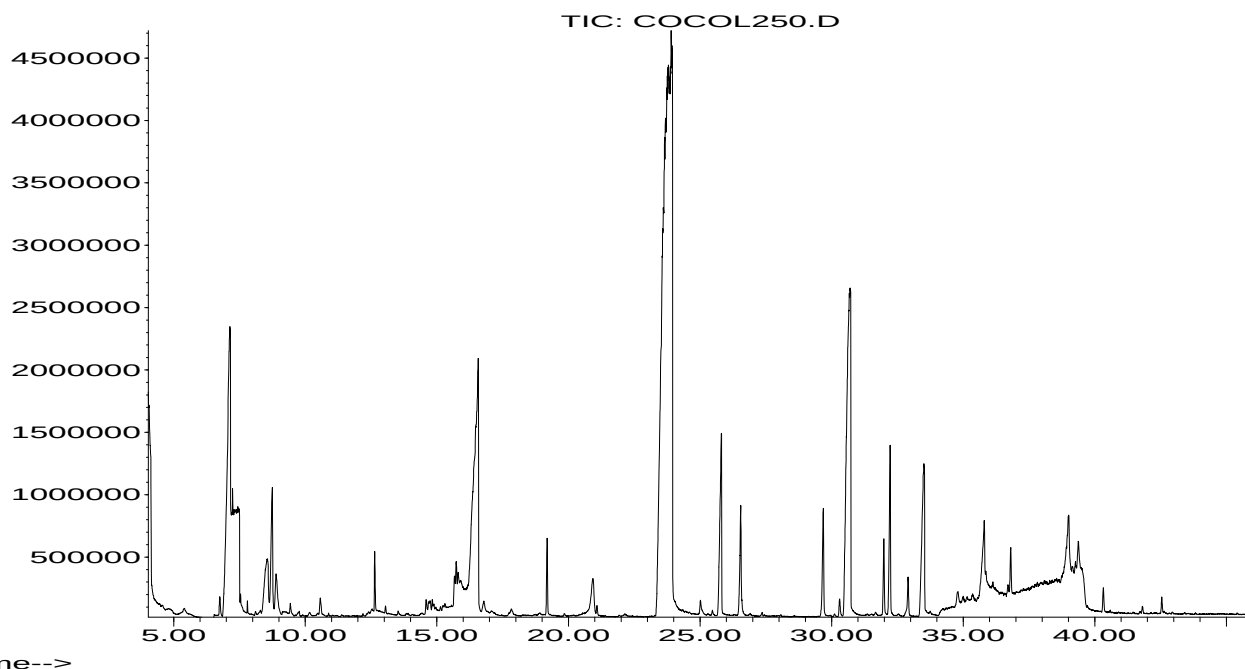


Figure: 1 mg chocolate flavoured powder desorbed at 250 °C

Appendix

Optic Parameters:

Liner:	ATASGL Fritted
Microvial:	6 mm
Mode:	Expert
Gas Flows:	Vent: 75 ml/min
	Split: 10 ml/min
Initial temperature:	35 °C
Isothermal time:	1 min
Ramp rate:	16 °C/s
Final temperature:	250 °C
End time:	46 mins
Sweep pressure:	8 psi
Sweep time:	0.5 mins
Split open time:	0.5 mins
Desorption pressure:	0 psi
Desorption time:	2.5 mins
Transfer pressure:	7.4 psi
Transfer time:	2 mins
Initial pressure:	7.4 psi
Final pressure:	19.1 psi

Cryotrap Parameters:

Cryo on:	0.25 mins
Cryo off:	4 mins

GC Parameters:

Column:	HP5-MS 30m x 0.25mm i.d. x 0.25um film
Initial temperature:	45 °C
Initial time:	5 mins
Ramp rate:	5 °C/min
Final temperature:	250 °C

MS Parameters:

Acquisition mode:	Scan
Low mass:	30 m/z
High mass:	280 m/z
Sampling number:	2
Threshold:	500
Transfer line:	280 °C
Solvent delay:	4 mins