

Application Note No. 079

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

*Diane Nicholas.*

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

### Instrumentation

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- ATASGL Optic 2-200 programmable injector
- Agilent 5890 gas chromatograph with 5971 mass selective detector
- SGE CO<sub>2</sub> cryotrap

### Principles

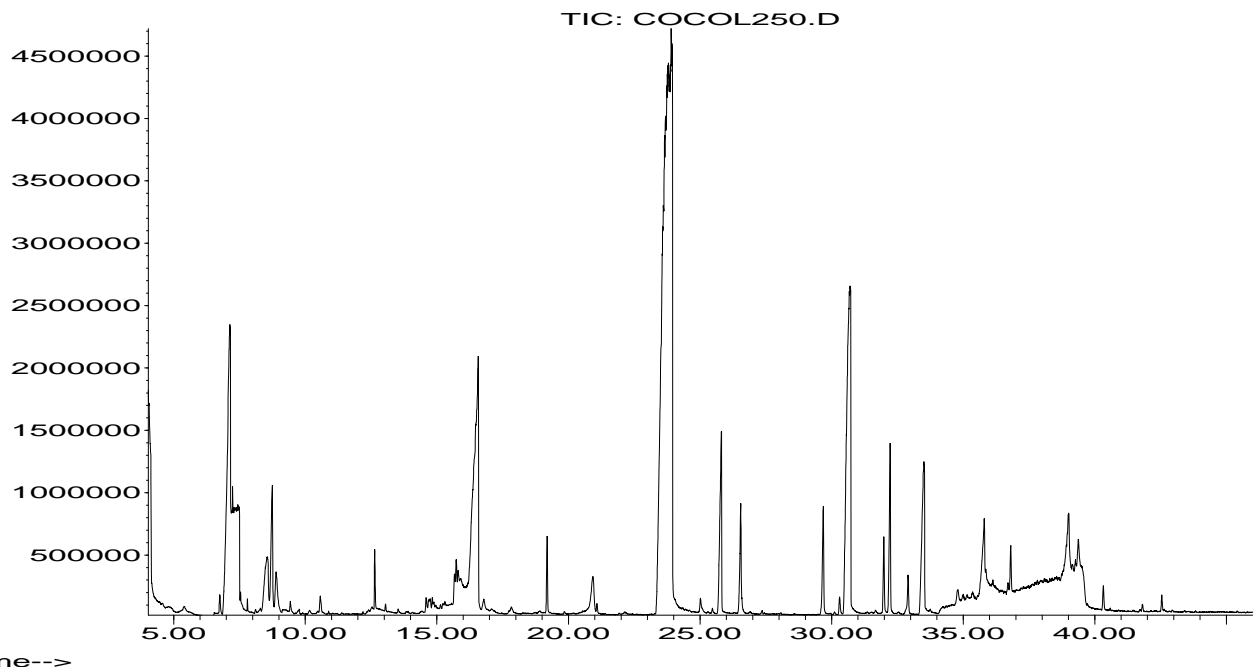
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- Place 0.5-1 mg of cocoa powder in a microvial, place in fritted liner in injector and start run
- Liner is firstly swept and the cryotrap is turned-on
- The analytes are thermally desorbed under static flow conditions
- The analytes are swept onto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

### Chromatograms

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Abundance



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

## **Appendix**

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### **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

### **ATAS GL INTERNATIONAL B.V.**

De Sleutel 9, 5652 AS, Eindhoven, The Netherlands  
Tel. +31 (0)40 254 95 31 Fax. +31 (0)40 254 97 79  
E-mail: [info@atasgl.com](mailto:info@atasgl.com) Internet: [www.atasgl.com](http://www.atasgl.com)  
Web shop: [www.atasgl.com/shop](http://www.atasgl.com/shop)