

Application Note No. 055

## Analysis of Lambda-Cyhalothrin using the AT-Column Concentrating Technique

*Diane Nicholas.*

- **Replaces existing LC-MS method**
- **All of the concentrated analytes are directly transferred on to the head of the column under cool conditions**
- **No or very little optimisation is required**

### **Instrumentation**

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- ATAS Optic 2-200 programmable injector
- ATAS AT-Column kit
- HP5890 with HP5971

### **Sample analysed**

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Low level lambda-cyhalothrin residue from oily crops in hexane.

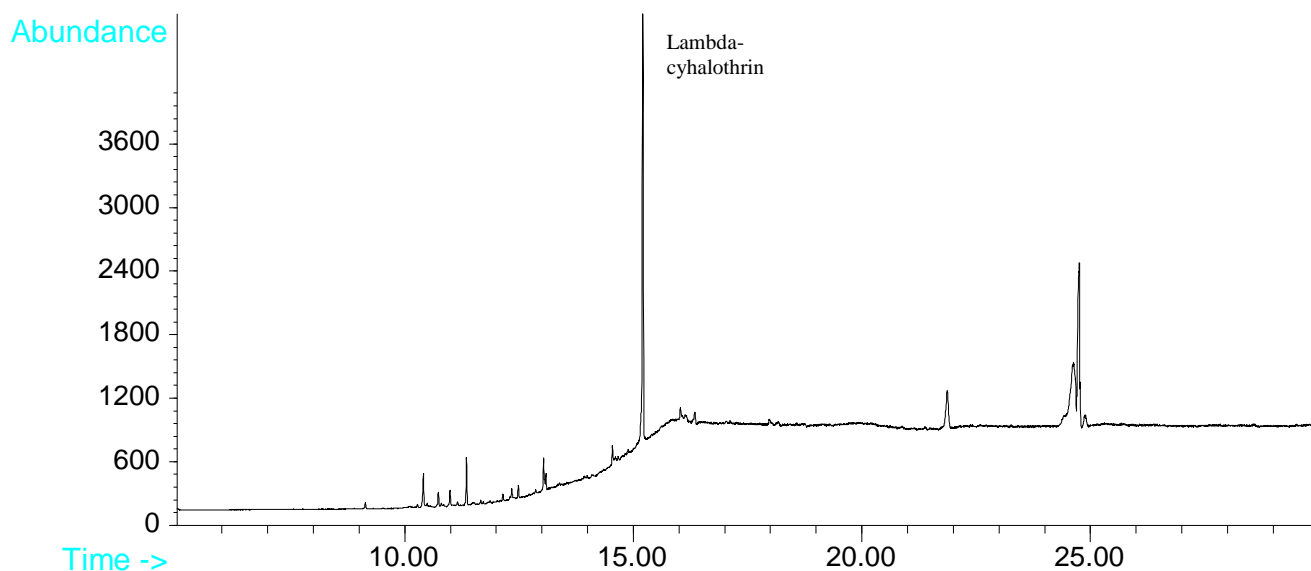
### **Principles**

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- Sample is injected under AT-Column conditions
- An equilibrium is formed between the solvent vapour pressure and carrier gas pressure keeping the solvent in the liner
- Solvent is vented, analytes are concentrated and transferred onto the head of the capillary column
- GC oven temperature program starts

### **Chromatogram**

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*We would like to thank Derek Brown from Agrisearch for his kind permission to publish this information and Alan Tuckley from Agilent Technologies for providing the column.*

For more information please contact us at one of the addresses below.

## Appendix

**Optic Conditions:**

- Liner: AT-Column
- Mode: Large Volume
- Injection volume: 30-100  $\mu$ L
- Gas Flows: Split: 50 ml/min  
Vent: 75 ml/min
- Initial temperature: 73  $^{\circ}$ C
- Vent time: Auto
- Ramp rate: 1  $^{\circ}$ C/s
- Final temperature: 200  $^{\circ}$ C
- Splitopen time: 0:00 m:s
- Purge pressure: 3.63 psi
- Transfer pressure: 9.00 psi
- Transfer time: 1:00 m:s
- Initial pressure: 9.00 psi
- Final pressure: 23.10 psi
- Solvent threshold: 15

**GC-MS conditions:**

- Column: HP5-MS 30m x 0.25mm i.d. x 0.50  $\mu$ m film
- Initial Temperature: 86  $^{\circ}$ C hold 2.3 mins
- Ramp 1: 20  $^{\circ}$ C/min to 300  $^{\circ}$ C hold 1min
- Ramp 2: 50  $^{\circ}$ C/min to 320  $^{\circ}$ C hold 15.60 mins
- MSD transfer line: 310  $^{\circ}$ C
- MSD tune: BFB (ions 130 & 219)
- SIM mode: Ions 181 & 208