

Application Note No. 055

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

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- **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

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

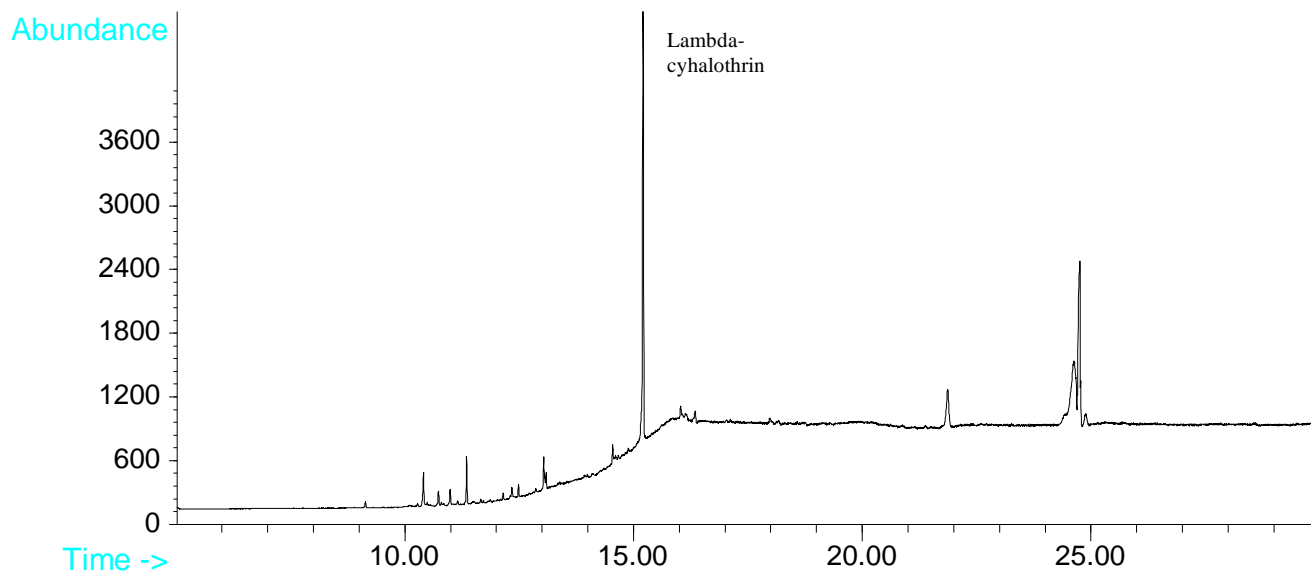
Sample analysed

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

Principles

- 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



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 μ 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 μ 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