

## Analysis of Trace Level Silicone Oil in Vehicle Paint using Difficult Matrix Introduction (DMI) Coupled with Selective Exclusion

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### *Exclusion of major components allowing trace level detection*

- *No manual sample preparation*
- *May be automated using the Focus DTD*

### *Instrumentation*

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- ATAS Optic 2-200 programmable injector
- HP5890 with FID

### *Sample analysed*

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Vehicle paint contaminated with both high and low levels of silicone oil.

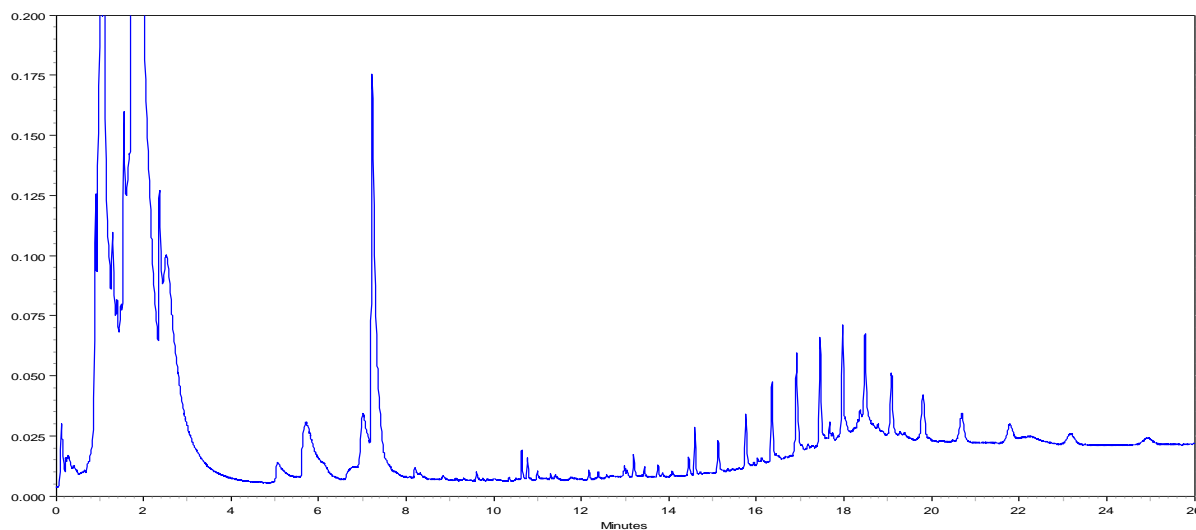
### *Principles*

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- Inject 1  $\mu\text{L}$  of paint into the bottom of a DMI microvial
- Place microvial into a fritted liner and place in the Optic injector
- Vent the solvents at a low temperature
- Selectively desorb the silicone oil
- Transfer the components onto the head of the column in splitless mode
- At the end remove the microvial containing the involatile constituents and reuse the liner

### *Chromatogram*

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**Figure:** *Paint spiked with low level silicone oil*

*We would like to thank Matthew Griffin from BMW for his kind permission to publish this information.*

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

## Appendix

**Optic Conditions:**

- Liner: ATAS Fritted + 5 mm DMI  
Microvial
- Mode: Expert
- Injection volume: 1  $\mu$ L
- Gas Flows: Split: 100 ml/min  
Vent: 120 ml/min
- Equilibration Time: 0:30 m:s
- Initial temperature: 100  $^{\circ}$ C
- Isothermal time: 12:30 m:s
- Ramp rate: 16  $^{\circ}$ C/s
- Final temperature: 325 $^{\circ}$ C
- Vent time: 12:20 m:s
- Splitless time: 4:00 m:s
- Split open time: 16:30 m:s
- Purge pressure: 3 psi
- Purge time: 12:20 m:s
- Desorption pressure: 0 psi
- Desorption time: 2:00 m:s
- Initial pressure: 30 psi
- Final pressure: 60 psi

**GC conditions:**

- Column: DB5 30m x 0.32mm i.d. x 0.25  $\mu$ m film
- Initial Temperature: 150  $^{\circ}$ C
- Initial Time: 2 mins
- Ramp Rate: 15  $^{\circ}$ C/min
- Final Temperature: 325  $^{\circ}$ C
- Final Time: 15 mins
- FID temperature: 350  $^{\circ}$ C