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Analysis with the Pulsed Flame Photometric Detector (PFPD)

Flavor and Fragrance Applications



Introduction

- Sulfur compounds are an important component of flavor and fragrance analyses.
- They are responsible for specific and distinctive flavors in many foods & beverages.
- Sulfur compounds can be difficult to analyze and identify because they are present at trace levels in a complex matrix.
- MS or FID commonly used, but not sensitive enough to detect sulfur compounds at trace levels.
- The PFPD can be used in parallel with MS to identify RT of trace level sulfur compounds.



GC Configuration MS/FID/PFPD



6890N GC with
5973N MS

Agilent FID in Front
for Sulfur Quantitation

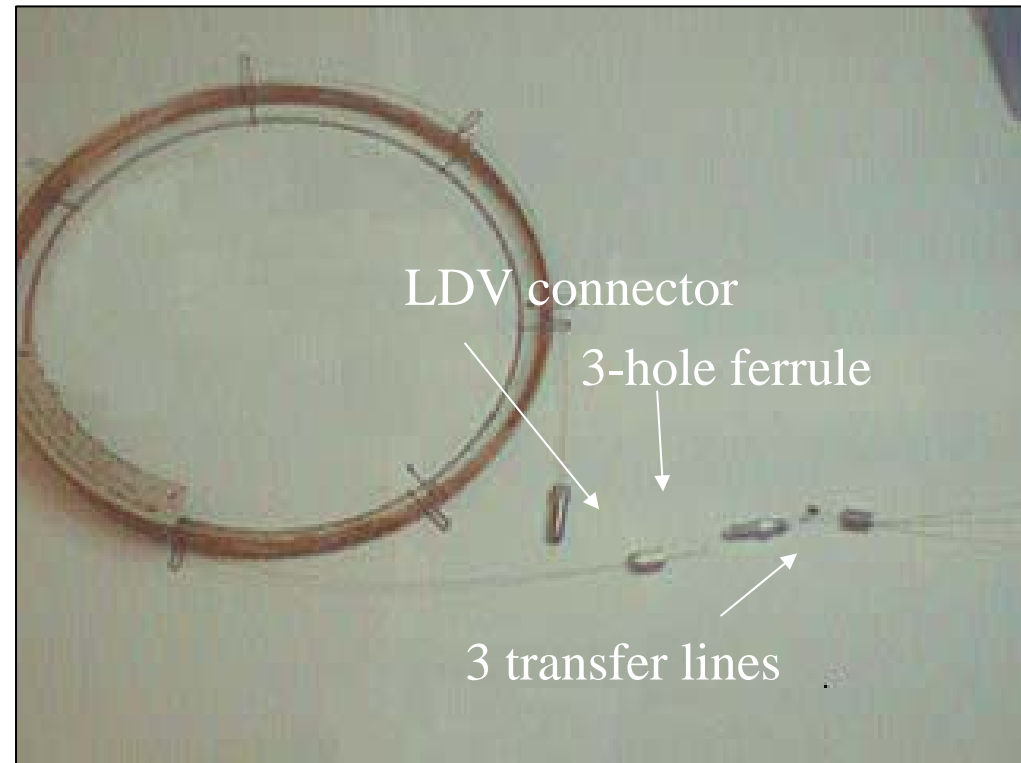
OI Analytical PFPD in Back
For Identification and RT Marking



Column Configuration for 3 Detectors



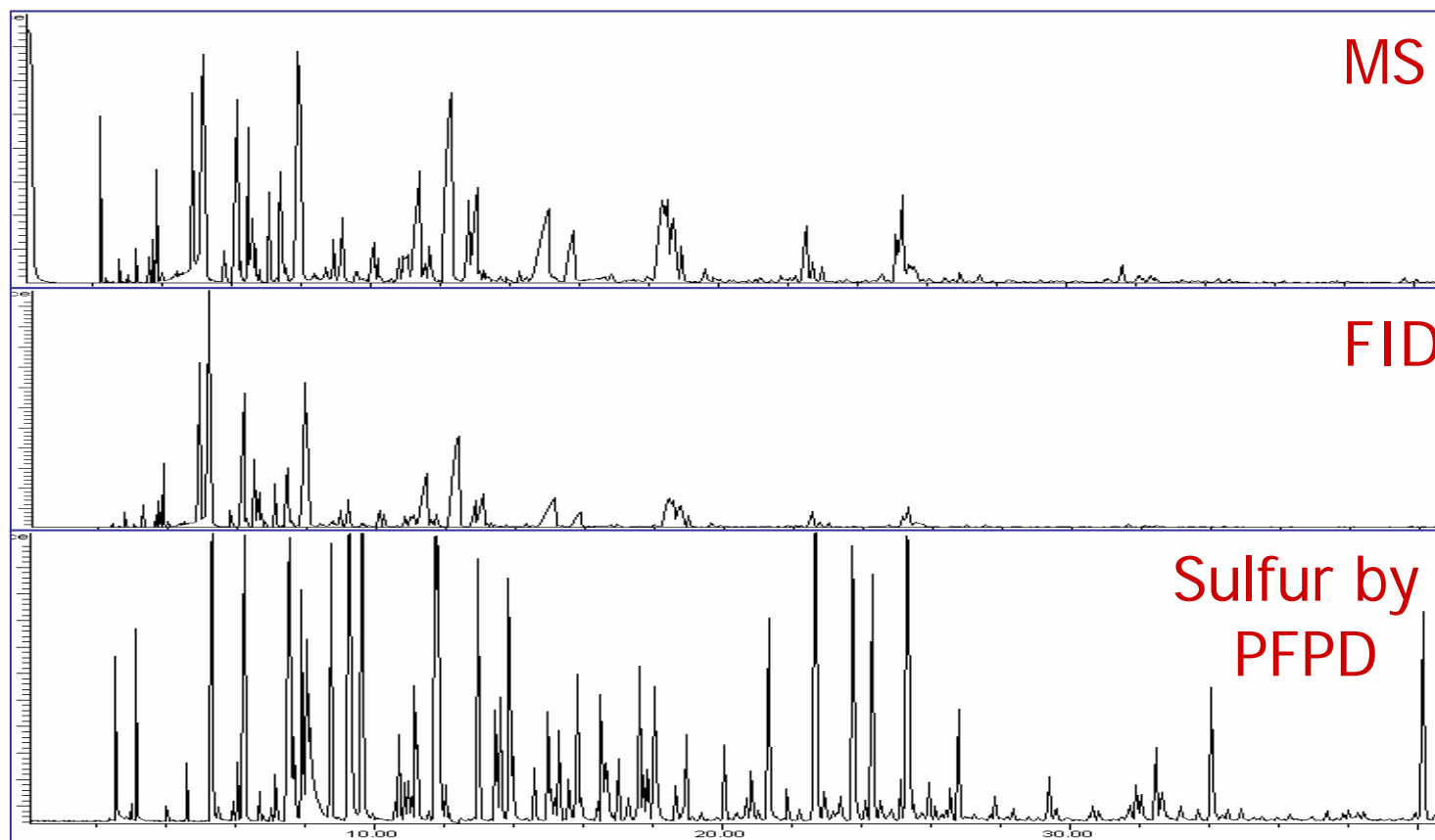
Standard installation
of the column at the
injection port



Detector end of the column is split using
low-dead-volume connector and a 3-hole
ferrule

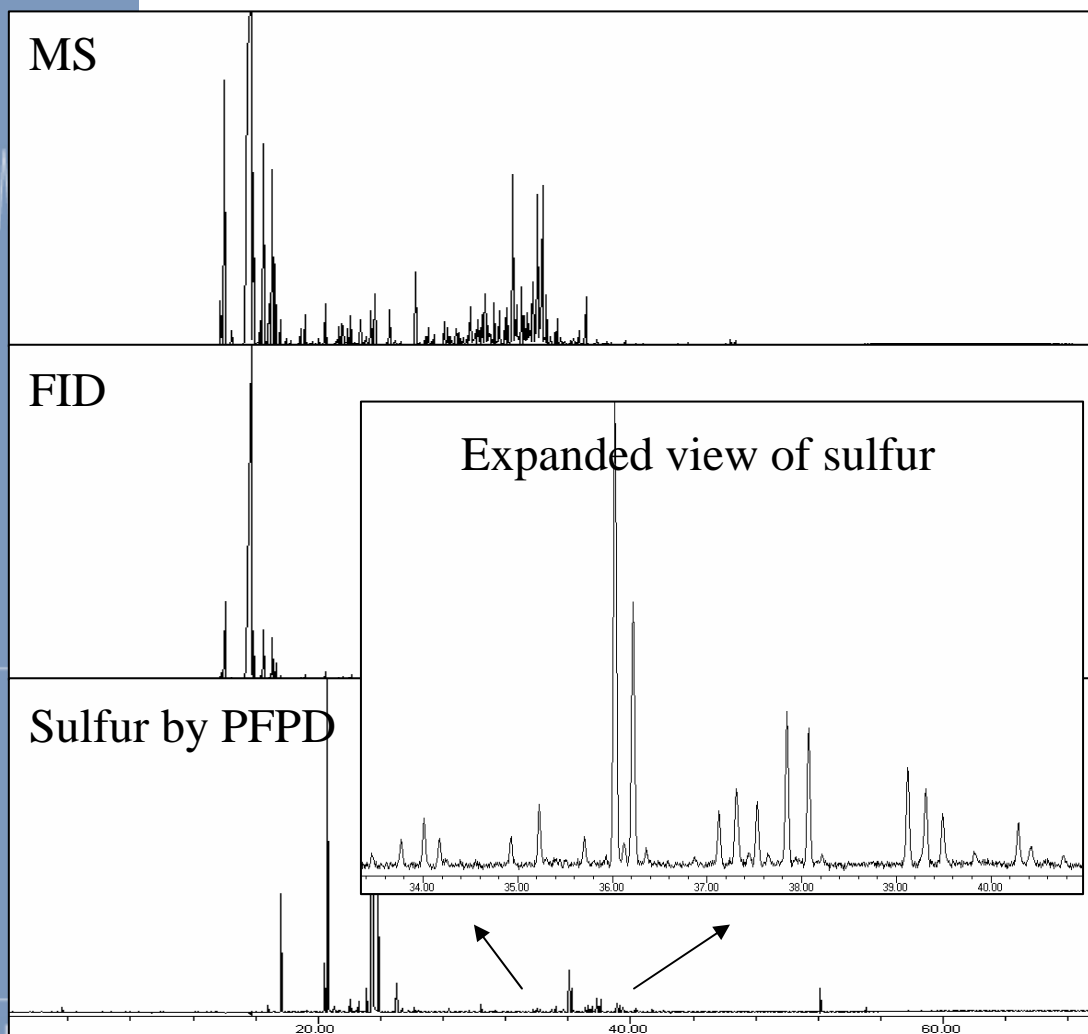
Sulfur in Coffee by MS/FID/PFPD

3 Simultaneous Chromatograms From Coffee "A"



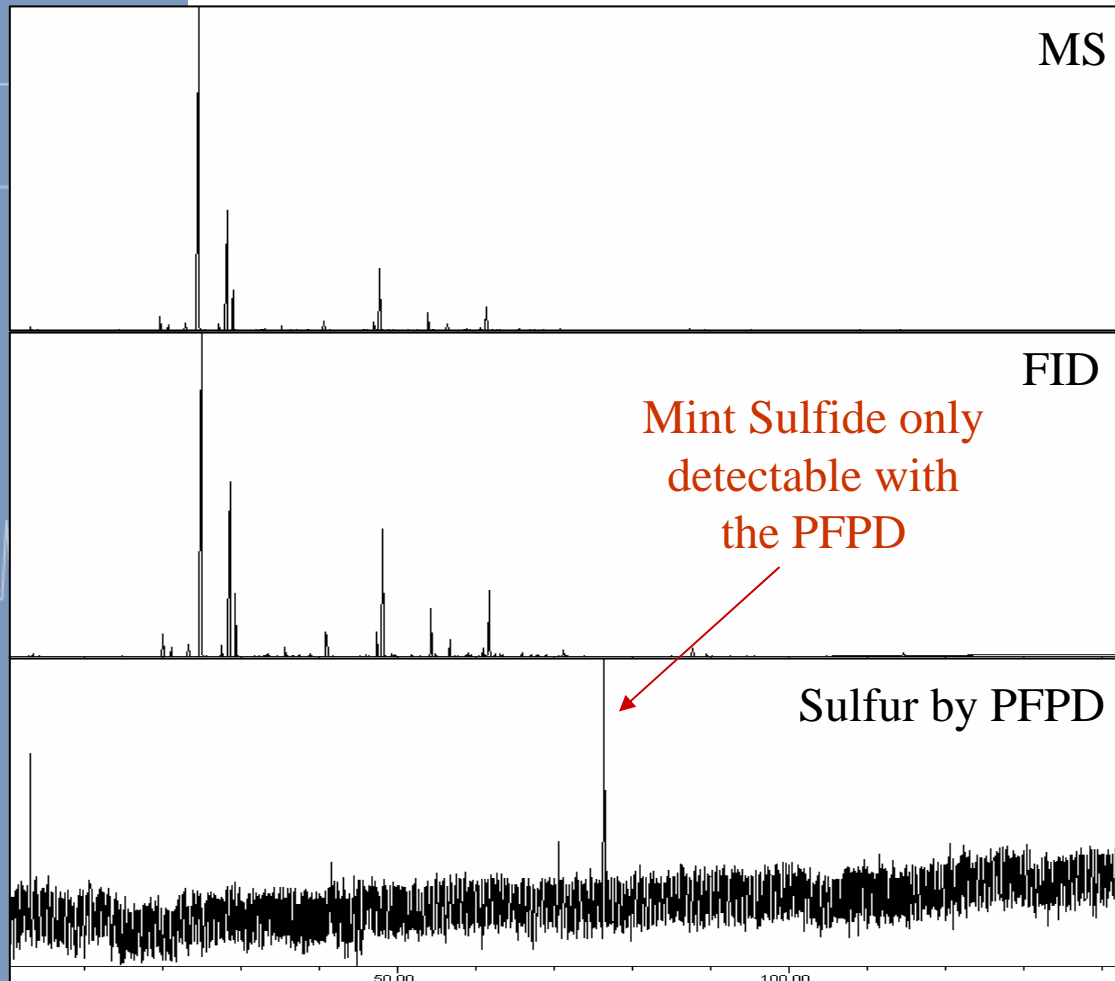
Over 200 sulfur peaks detected

Sulfur in Galbanum Oil



- Essential oil distilled from the galbanum plant
- Green, fresh leafy odor, dry woody undertones, pine highlights
- Used in production of fragrances
- Using an FPD only 4 sulfur peaks were detected

Sulfur in Fishwort Oil



- Essential oil distilled from the fishwort, or “Chinese Lizard Tail”, plant (2 varieties)
- Corriander aroma or lemon/orange odor
- Used in production of flavors
- Using an FPD no sulfur peaks were detected