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The Pulsed Flame Photometric Detector: A Rugged and Versatile Selective Detector For a Wide Range of Applications

Introduction

- The Pulsed Flame Photometric Detector (PFPD) is a new generation of Flame Photometric Detectors (FPD).
- The PFPD has several distinct advantages over the static FPD, for example:
 - Increased sensitivity (10 - 100x, depending on FPD)
 - Increased selectivity (10x or more, depending on FPD)
 - Linear, equimolar response for sulfur and phosphorus, and easier calibrations
 - Decreased gas requirements
 - Minimal maintenance

Introduction (cont.)

- The Pulsed FPD can be used for any application or method that calls for a static FPD, with improved results.
- It can also be easily configured for a wide variety of *additional* applications that are not easily done with a traditional, static FPD.
- The PFPD has the unique ability produce simultaneous, mutually selective chromatograms for S/C, S/P, and S/N using one detector with a small footprint and single PMT.
- And, the PFPD can detect up to 28 different elements for unique applications.

Introduction (cont.)

- Some of the distinctive applications of the PFPD include:
 - Low-level sulfur speciation in gasoline and diesel
 - Sulfur speciation in other petrochemical matrices
 - Simultaneous sulfur and carbon chromatograms
 - Simultaneous organophosphorus and organosulfur pesticides
 - Parallel configuration with MS for complex matrices
 - Sulfur speciation in flavor and fragrance matrices
 - Sulfur quantitation in food and beverage samples
 - Organotin analysis in environmental samples
 - Arsenic, selenium, and silicone detection
 - Chemical warfare agent monitoring



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Comparison of FPD, Enhanced FPD, and Pulsed FPD



PFPD Advantages

- The principle advantages of the Pulsed FPD over the traditional, static FPDs include:
 - Dual-element capability for the cost of a single detector
 - Better sensitivity and selectivity
 - Simultaneous, mutually selective S/P, and S/C chromatograms
 - Linear, equimolar response
 - Wider range of applications and methods
 - Long-term stability
 - Lower cost of ownership and less gas usage

PFPD Applications

- The unique operation of the Pulsed FPD allows it to be easily configured for many applications that are beyond the capability and scope of static FPDs.
- Examples of the principle applications are shown in the following slides, and include:
 - Petrochemical applications
 - Pesticide applications
 - Flavor/fragrance and food/beverage applications
 - Pulp mill effluent
 - Arsenic, tin, and selenium applications
 - Chemical warfare agent monitoring

Summary

- The Pulsed FPD has many significant advantages over the traditional, static FPD, including:
 - Dual-element capability for ½ the cost of the static FPD dual mode
 - Low cost of operation and long-term stability
 - Simultaneous, mutually selective chromatograms for S/C, S/P, and S/N
 - Wide range of applications not possible with the static FPD
- Please visit the OI web site for more information on the OI Analytical PFPD and a complete listing of application notes.

Website Information

www.oico.com