BOILING RANGE DISTRIBUTION OF GASOLINE AND GASOLINE FRACTIONS

Application Note

REFERENCE METHODS

ASTM D3710, D7096, D86

CALIDUS™ 101-HT UltraFast GC

ASTM D3710 Boiling Range Distribution of Gasoline and Gasoline Fractions

GC analysis for product specification and certification and online blending control of gasoline and gasoline fractions
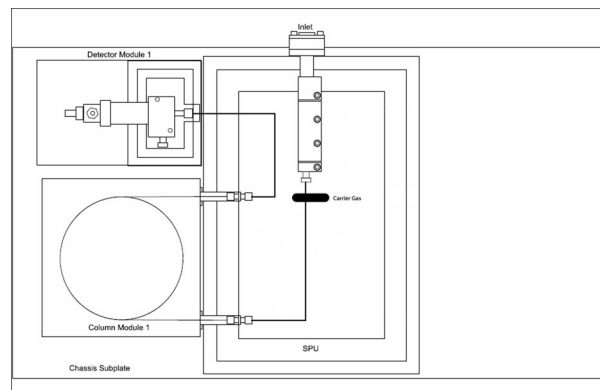

Figure 1: CALIDUS 101-HT Functional Diagram

APPLICATION OVERVIEW

The Sample Processing Module with a standard split/splitless injection port, incorporating either a syringe through septum injection, Auto Sampler, or automated liquid sample valve delivers the sample to a Programmed Temperature Column Module (PTCM). The inlet includes septum purge to prevent bleed components from entering the system.

The PTCM is controlled by the method. It contains a MXT-1 Resistively-Heated Stainless Steel Capillary Column and is operated in a temperature programmed mode. The column provides the separation of the hydrocarbons in the liquid fuel sample. (See Figures 2 and 3)
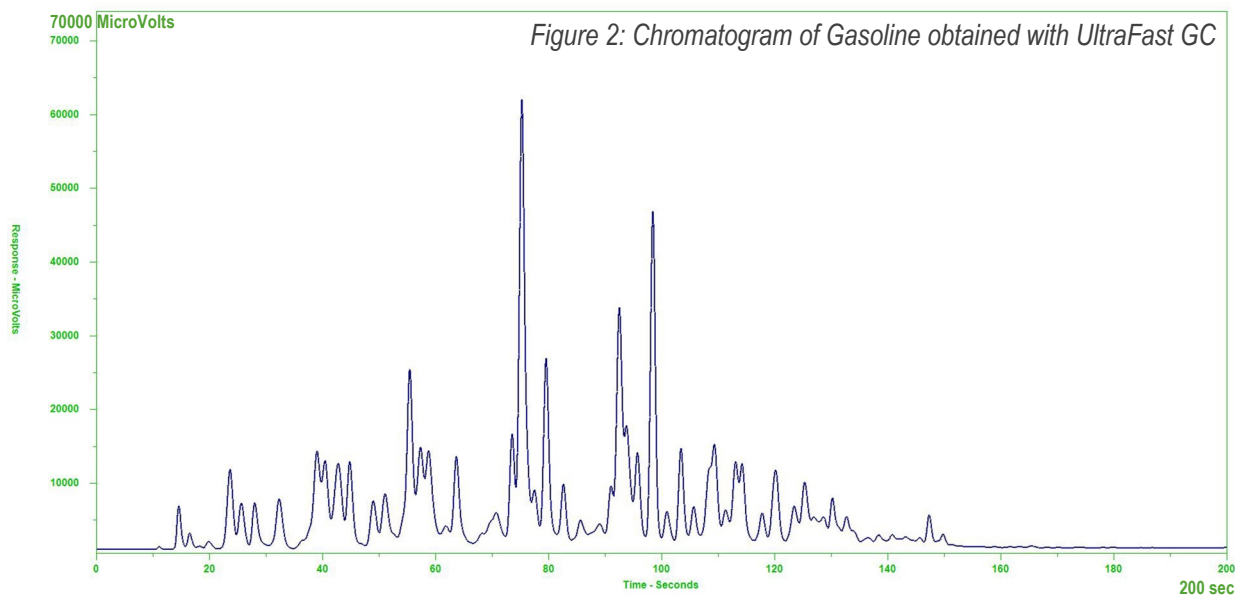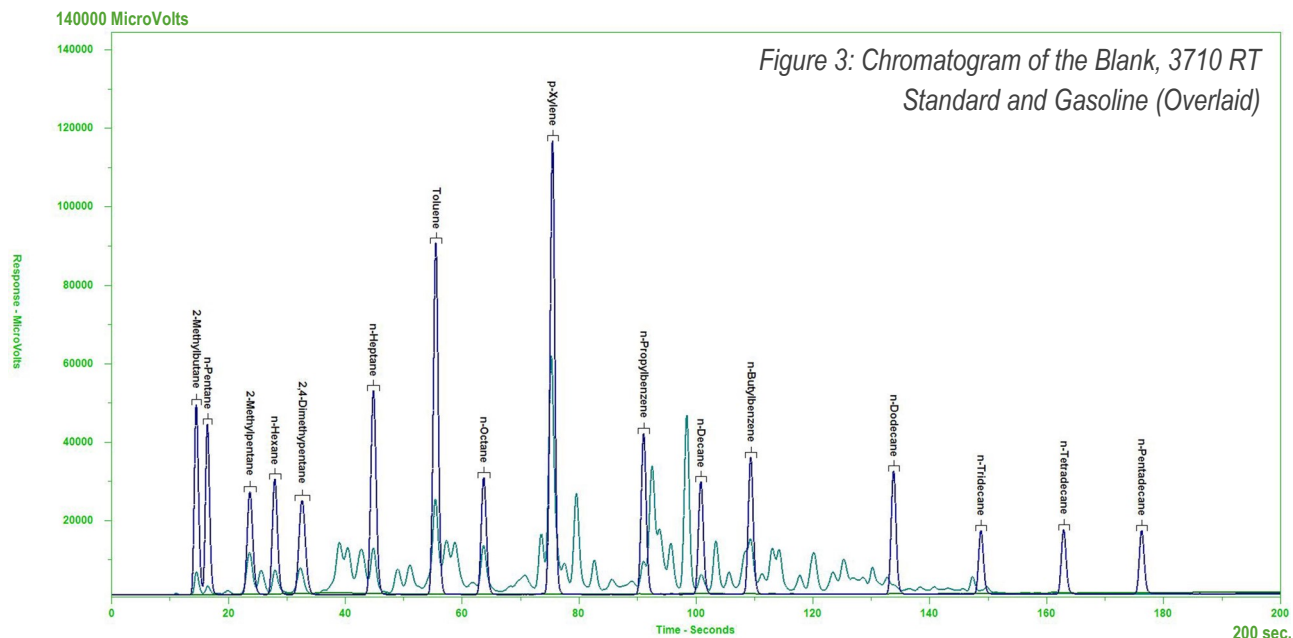

Figure 2: Chromatogram of Gasoline obtained with UltraFast GC

The analyzer includes the Chromperfect® chromatography data system, fully integrated, with InfoMetrix® LineUp™ and Dragon SimDist© running on a Windows PC for liquid hydrocarbon characterization by boiling range and reports defined by ASTM D3710.

Figure 3: Chromatogram of the Blank, 3710 RT Standard and Gasoline (Overlaid)

Implications

Boiling Range Distribution analysis provides refineries with a wealth of information. Information regarding the composition of the components used in the blending process is essential for the refinery control process.

- Simple design utilizing a single column and single detector
  - FID supports hydrocarbon analysis with a LOD of 1.0ppm
- Better precision allows blending to the BP of specific products; therefore, increasing profits
- Enables greater product throughput for increased revenues and profits
- Smaller footprint means more bench top or analyzer shelter space. In the lab or the plant, space is always at a premium
- Speed and precision for quicker turnaround
- Reduction in utility and maintenance cost (i.e. power and consumables)

Major Analytical Advantages

Fastest analysis time in the industry for ASTM D3710, with excellent performance and reliability.

Incorporates patented Resistively Heated Stainless Steel Capillary Column Module and its thermal management system, resulting in a paradigm shift in GC analysis.

Area normalization and LineUp account for sample syringe volume and any retention time variance, providing more repeatable data results.

The most powerful, durable, compact and lightweight analytical solution for Boiling Range Distribution Analysis (43 cm L X 21.5 cm D X 27.9 cm W, wt. 9.07 kg).

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