



Gasoline Analyzer for ASTM D4815 D5580

Introduction

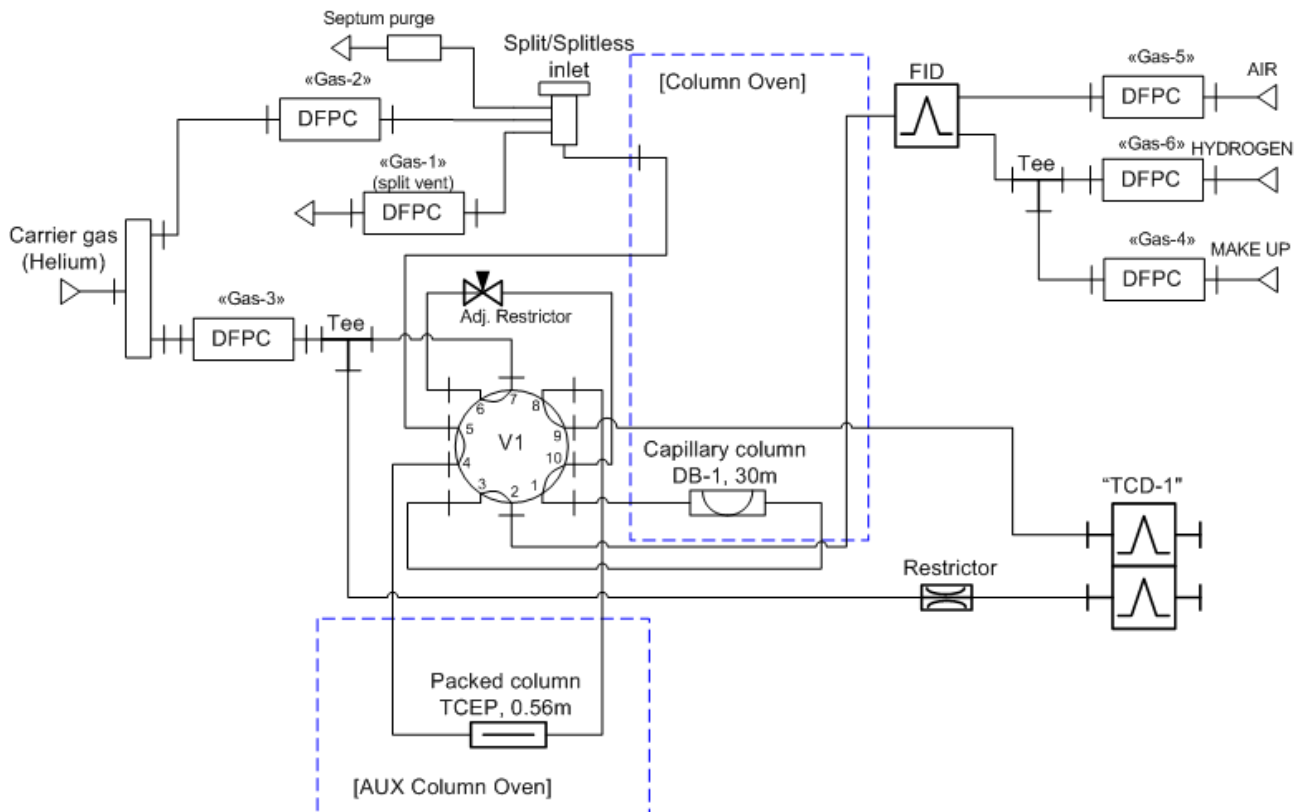
Chromatec-Crystal 5000 Gas Chromatograph configured for determination of oxygenates (ASTM D4815) and aromatics (ASTM D5580) in finished gasoline using multidimensional gas chromatography technique.

Test method ASTM D5580 covers the determination of benzene (0.1 – 5 % vol.), toluene (1 – 15 % vol.), ethylbenzene and xylenes (0.5 – 10 % vol.), C9 and heavier aromatics (5 – 30 % vol.), and total aromatics (10 – 80 % vol.) in finished motor gasoline by gas chromatography.

Test method ASTM D4815 covers the determination of ethers (MTBE, ETBE, TAME, DIPE) and alcohols (methanol, ethanol, isopropanol, n-propanol, isobutanol, tert-butanol, sec -butanol, n-butanol, and tert-pentanol) by multidimensional gas chromatography. Individual ethers are determined from 0.20 mass % to 20.0 mass %. Individual alcohols are determined from 0.20 mass % to 12.0 mass %.



Flow diagram



V1 – Switching Valve 10-port (automatic, temperature-controlled)

TCD-1, FID – detectors

DFPC – Digital flow / pressure controllers

Capillary column located in the main oven

Packed column TCEP located in auxiliary column oven

First micropacked pre-column TCEP allows preliminary separation mainly aliphatic hydrocarbons from target compounds. Forward vent flow through micropacked column monitored by TCD cell allows adjustment switching time precisely. Then TCEP pre-column backflushes to elute analytes to the main non-polar capillary column and FID for quantitative determination. Switching time operating mode determines target compounds to be analyzed.

Chromatograms

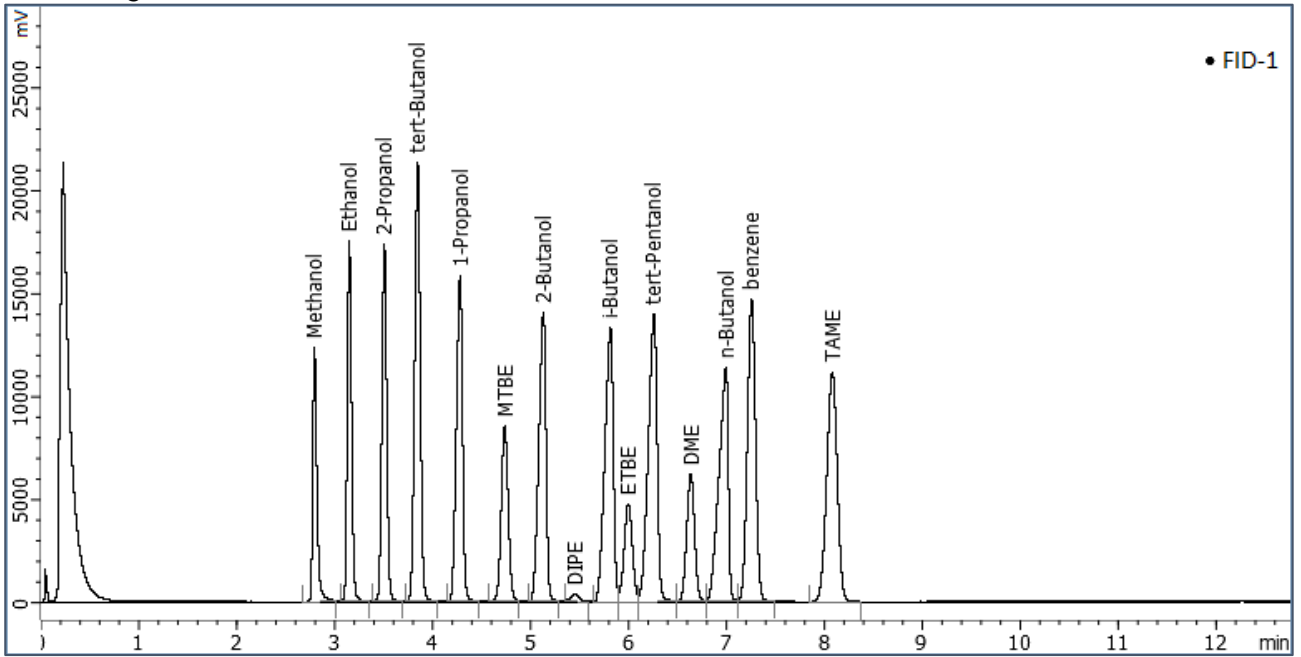


Figure1 – ASTM D4815 – Oxygenates in gasoline

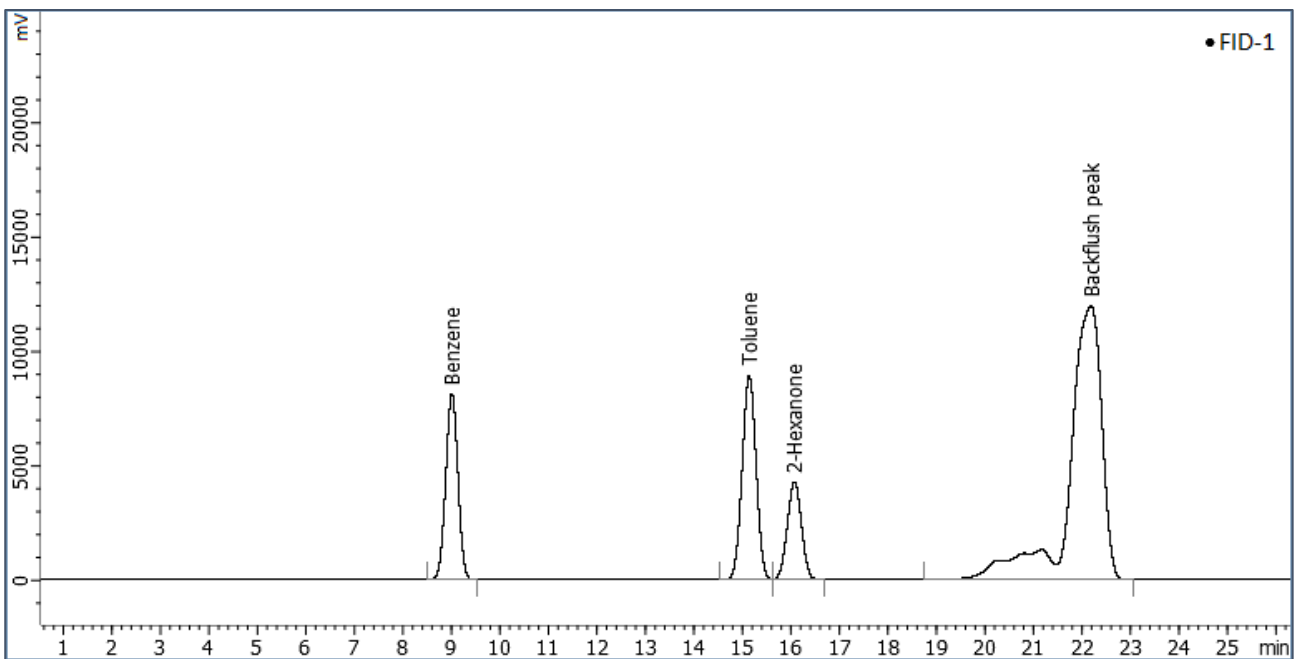


Figure2 – ASTM D5580 – Aromatics in Gasoline (Method 1)

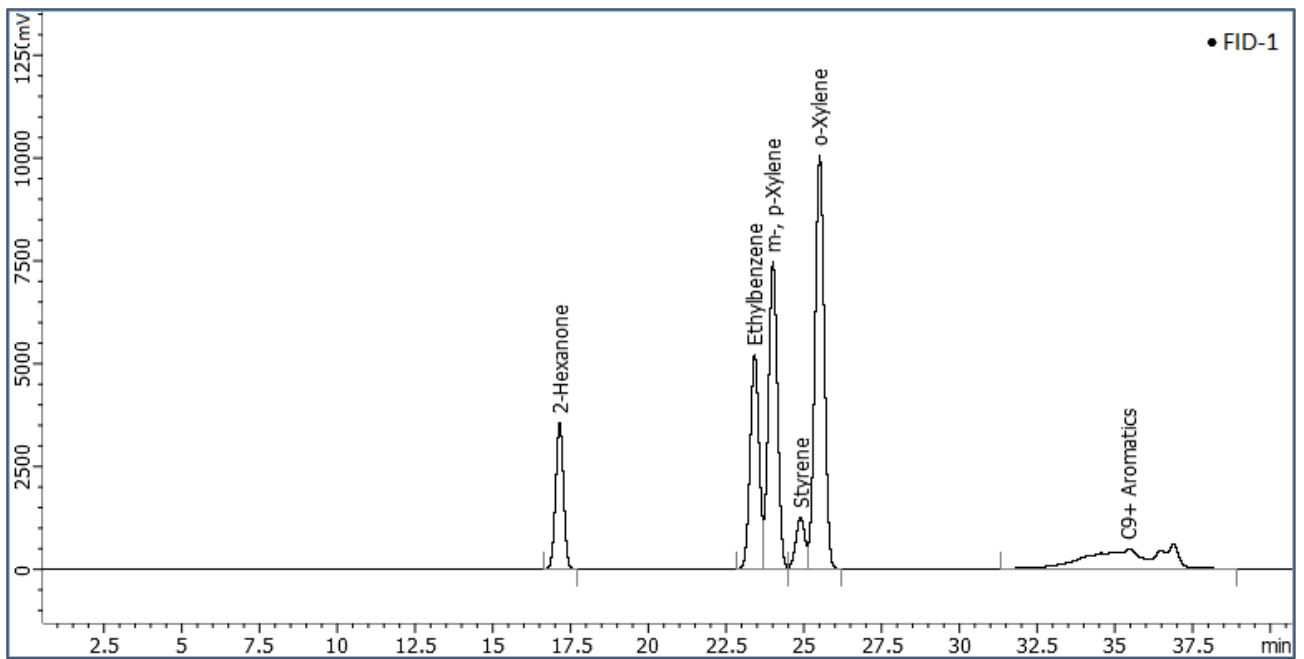


Figure3 – ASTM D5580 – Aromatics in Gasoline (Method 2)

