

## Gas Chromatography

### GC-FID/TCD with headspace autosampler



**Brand :** Agilent Technology

**Model:** GC7890B with FID&TCD, 7697A Headspace Sampler

**Custodian :** Nuntanat Kitisrivorapan

**Location :** K638 Room, 6<sup>th</sup> Floor, Chaloeprakiet Building, Phyathai Campus

#### GC-FID/TCD

Description	Specification
Auto injector	Fast injection Injection volume 0.1 - 5 microliter Syringe size 5 and 10 microliter
Auto Sampler	2 ml Sample vial up to 150 samples vial 10 x 4 mL for injector solvent vials
Inlet	2 Injection port Split/Splitless mode for capillary column only, max split ratio 7500:1 Maximum temperature set up to 400°C Electronic Pneumatics Control (EPC)
Oven	Temperature range +4°C from room temperature up to 450°C Temperature program ramps up to 20 Steps Temperature program rate from 1 - 120°C/min
Flame Ionization Detector (FID)	Temperature set up to 400°C Linearity range up to 10 <sup>7</sup> Minimum detectable for for tridecane): < 1.4 pg C/s
Thermal Conductivity Detector (TCD)	Temperature set up to 400°C Linearity range up to 10 <sup>5</sup> Minimum detectable for tridecane is 400 pg/mL
Data Processing and Report	Software control through Agilent OpenLAB CDS software OS system on Window 10
Column	HP-1 (30m x 0.25 mm x 0.25 µm film thickness) HP-5 (30m x 0.32 mm x 0.25 µm film thickness) HP-Innowax (30m x 0.25 mm x 0.25 µm film thickness) CP7429 Select Permanent Gases/CO2 (a set of two parallel columns that combines CP-Molsieve 5Å for permanent gas analysis and CP-PoraBOND Q for CO2analysis)

## Headspace Sampler

Description	Specification
Chromatographic performance	Typical area repeatability 7697A with tray <1% RSD
Pneumatic control	<ul style="list-style-type: none"> <li>-Electronic pneumatic control (EPC)</li> <li>-Flow setpoints may be adjusted by increments of 0.01 mL/min, with typical control <math>\pm 0.01</math> for the range 0.0 to 200 mL/min</li> <li>- Accuracy: &lt; <math>\pm 2\%</math> full scale</li> <li>- Repeatability: &lt; <math>\pm 0.05</math> psi</li> <li>- Temperature coefficient: &lt; <math>\pm 0.01</math> psi/<math>^{\circ}</math>C</li> <li>- Drift: &lt; <math>\pm 0.1</math> psi/6 months</li> </ul>
Timing control	<ul style="list-style-type: none"> <li>- Vial equilibration time from 0 to 999.99 min in 0.01 min increments</li> <li>- Injection duration from 0 to 999.99 min in 0.01 min increments</li> <li>- GC cycle time from 0 to 999.99 min in 0.01 min increments</li> <li>- Sample probe purge time from 0 to 999.99 min in 0.01 min increments</li> </ul>
Sampler vials size	10, 20 mL
Sampler Tray	108 +3 vials with 12 position oven for optimized sample overlapping
Thermal Control	Oven: +5 from RT to 210 $^{\circ}$ C Valve and Loop: +5 from RT to 300 $^{\circ}$ C Transfer Line: +5 from RT to 300 $^{\circ}$ C
Software Control	Software control through Agilent OpenLAB CDS software
Application	For separation and determination volatile mixtures from solid, liquid sample and gases