C184-E014L

SHIMADZU
Excellence in Science

Capillary and Packed Gas Chromatograph

GC-2014

High Performance and Expandability Merged at a higher level

GC-2014

Capillary and Packed Gas Chromatograph

High Performance

Superior Performance

Improved design and innovative technology for all of our injectors, detectors and flow controllers equal or surpass our GC-2010 the high-end technology leader.

Easy Operation

Excellent User Interface

Large LCD, all digital gases control and auto-diagnostics inherited from the GC-2010 – "The Most advanced, easy-to-use interface"

Flexibility

Expandability for Every Situation

Use any column types for any analysis. Packed or capillary columns give you the freedom to choose the best technique for your measurement. Fully integrated multiple valve systems are made simple for optimum performance for SystemGC custom GC products.

Big Performance & Small Space GC-2014

Application Systems

GC-2014 Analysis Systems for Every Application

Headspace Analysis System

- High reproducibility ensure reliable quantitation for volatile component analysis.

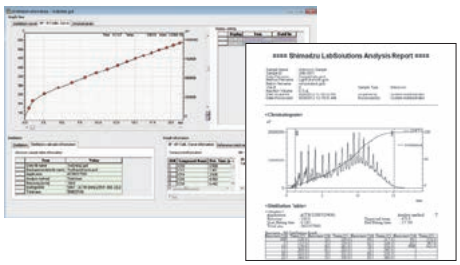
System Configuration

- GC-2014 + HS-10

Analysis Applications

- Measurement of VOCs in water
- Blood Alcohol Concentration (BAC)

Simulated Distillation GC System for LabSolutions



- Measures the boiling point distribution of petroleum distillate using the relationship between retention time and boiling point.
- Analyzes distillation characteristics and prints specialized reports.

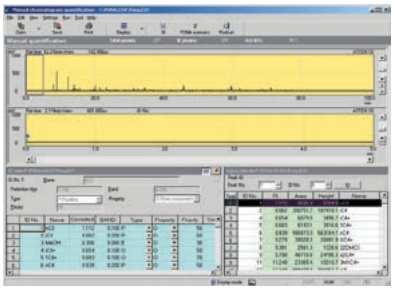
System Configuration

- GC-2014 + WBI-2014 + LabSolutions GC + Simulated Distillation GC Analysis Software (Select sample injection unit and column according to the target sample)

Analysis Applications

- Petroleum distillate

PONA Analysis System



- Separates gasoline or other hydrocarbon compounds, identifies the peaks and classifies them by carbon number, or by type (paraffin, olefin, naphthene and aromatic series) for quantitation.

System Configuration

- GC-2014 + CRG-2014 + GCsolution + PONAsolution + MS Excel (commercially available spreadsheet software) (Select sample injection unit and column according to the target sample)

Analysis Applications

- Categorization of naptha, gasoline and gasoline-based materials by carbon number or type and their quantitation.(Also offers calculation of mean specific gravity, mean molecular weight, and octane value.)

Workstations

LabSolutions LC/GC Ver.5

- LabSolutions LC/GC Ver.5 is the next generation of chromatography data system that integrates control of GC* (GC-2010 Plus, GC-2010, GC-2014, GC-2025 and GC-14B) and LC and deliver greater network capability.
  * LabSolutions does not support Distillation GC Software and PONAsolution, please use GCsolution for these software.
  Note: CBM-102 is necessary for controlling GC-14B.

GCsolution Ver.2

- GCsolution Ver.2 supports not only GC-2014, but also GC-2025*, GC-2010 Plus*, GC-2010, GC-17A, GC-1700 and GC-14A/B.
  * GC-2010 Plus can be controlled by GCsolution Ver.2.32 or later and GC-2025 by GCsolution Ver. 2.40 or later respectively.
  Note1: CBM-102 is necessary for controlling GC-17A, GC-1700 and GC-14A/B and the data acquisition. CBM-102 is not sold in EU area.
  Note2: In controlling GC-14A, the workstation functionalities are partly limited like the detector range 4 cannot be used.
- Both LabSolutions and GCsolution software can control a maximum of four GC units in a computer. By inputting detector analog signal into CBM-102, data acquisition is possible even on other Shimadzu GC models that cannot be controlled by the software.

Chromatopac C-R8A*

- Acknowledged data processing functions and ease of operation
- Built-in validation functions
- High-speed RS-232C port provided standard
- Easy operation designed for factory use
  * Chromatopac C-R8A is not sold in EU area.
- C-R8A uses a SD card as the memory device.

Specifications

Column Oven	
Temperature range	(Ambient + 10°C) ~ 400°C (using liquid CO_2 gas*: -50°C ~400°C)
Dimensions	250 (W) × 360 (H) × 175 (D) mm
Oven capacity	15.8L
Temperature accuracy	Set value (K) ± 1% (calibration at 0.01°C increments)
Temperature deviation	2°C max. (on 200mm dia. circumference 30mm from rear)
Temperature variation coefficient	0.01°C/°C
Temperature program steps	Up to 20 (cooling program possible)
Programmed rate setting range	-250°C ~ 250°C/min
Total time for all steps	9999.99 minutes max.
Linear heating range	Up to 150°C: 30°C/min (100V/120V), 60°C/min (230V) Up to 250°C: 20°C/min (100V/120V), 40°C/min (230V) Up to 380°C: 10°C/min (100V/120V), 20°C/min (230V) Up to 400°C: 7°C/min (100V/120V), 15°C/min (230V) *at 25°C ambient temperature
Cooling rate	300°C ~ 50°C in 6 min max. (at 25°C ambient temperature)
Columns accepted	Capillary columns: 2 Packed columns for GC14B: 4 (Glass columns: 2)

*Optional parts are required to use liquid CO_2 gas.

Sample Injection Unit	
Temperature range	Up to 400°C
Heating settings	1°C steps
No. of units installed simultaneously	Up to 3 units
Sample injection unit types	Dual packed, single packed, split/splitless, direct, direct (AMC)

Carrier Gas Flow Controller	
For Packed / Dual	
Flow rate setting range	0 ~ 100mL/min
Programmable steps	7
Programmed rate setting range	-400 ~ 400mL/min
Correction function	Maintains column flow rate during column oven heating
For Capillary Split/Splitless, Direct	
(Split/splitless injection mode)	
Pressure setting range	0 ~ 970kPa
Programmable steps	7 (pressure-decreasing program possible)
Programmed rate setting range	-400 ~ 400kPa/min
Split ratio setting range	0 ~ 9999.9
Total flow rate setting range	0 ~ 1200mL/min
Correction function	Maintains column average linear velocity during column oven heating (for capillary only)
(Pressure mode direct injection)	
Pressure setting range	0 ~ 970kPa/min
Programmable steps	7
Programmed rate setting range	-400 ~ 400kPa/min
Correction function	Maintains column average linear velocity during column oven heating (for capillary only)
(Flow-rate mode direct injection)	
Flow rate setting range	0 ~ 1200mL/min
Programmable steps	7
Programmed rate setting range	-400 ~ 400mL/min
For Single Packed, Direct (AMC)	
Flow rate setting range	0~100mL/min
Correction function	Maintenance column flow rate during column oven heating

Detectors	
Temperature range	400°C max. (FID, TCD, ECD, FTD) 350°C max. (FPD)
Temperature setting	1°C steps
No. of units installed simultaneously	Up to 4 units (restricted depending on detector type)
Detector type	FID, TCD, ECD, FPD, FTD for capillary/packed
Flame Ionization Detector (FID)	
System	Dual flow rate differential system
Temperature range	400°C max.
Minimum detected quantity	3pgC/s (dodecane)
Dynamic range	10^7
Nozzle	Quartz glass Standard: for packed, Option: for capillary
Thermal Conductivity Detector (TCD)	
System	Dual flow rate differential system
Temperature range	400°C max.
Dynamic range	10^5
Sensitivity	40,000mV · mL/mg (built-in pre-amplifier, with 10 × amplification)
Electron Capture Detector (ECD)	
System	Fixed current system using ^{63}Ni370MBq radiation source
Temperature range	400°C max.
Minimum detected quantity	0.1pg/s (γ-BHC)
Dynamic range	10^4
Flame Photometric Detector (FPD)	
Temperature range	350°C max.
Dynamic range	P: 10^4
	S: 10^3
Minimum detected quantity	P: 0.5pgP/s (tributyl phosphate)
	S: 8pgS/s (dodecane thiol)
Flame Thermionic Detector (FTD)	
	(Two types, one for capillary and one for packed. The specification are the same.)
Temperature range	400°C max.
Dynamic range	N: 10^3
	P: 10^3
Minimum detected quantity	N: 0.4pgN/s (azobenzene)
	P: 0.05pgP/s (malathion)

Display
240 × 320 dot graphics display (30 characters × 16 lines)

Dimensions, Weight, Power Requirements (GC main unit)	
Dimensions	400 (W) × 690 (H) × 607 (D) mm
Weight	48kg (GC-2014AF model)
Power Requirements	AC100V/120V 230V 1800VA (GC-2014AF model, AC100V/120V) or 2600VA (GC-2014AF model, AC230V), 50/60Hz

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First Edition: July 2004, Printed in Japan 3655-10814-10AIK