

Twin Line MS Kit for GCMS-QP2010 *Ultra*



Twin Line MS System

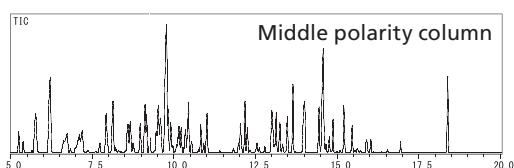
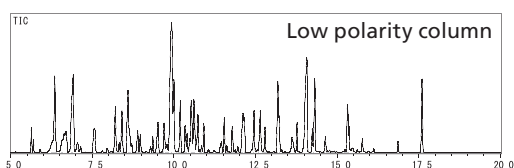


Features

Simultaneously install two capillary columns in one MS. Eliminates the Need to Swap Columns!

Installing Two Columns in One MS is Possible with the GCMS-QP2010 Ultra.

- 1 Switch applications using different columns without venting the MS.
- 2 High-capacity differentially-pumped vacuum system maintains sensitivity with carrier gas flow from two columns.
- 3 No sensitivity loss in the analysis of labile compounds because the entire sample pathway is inert.
- 4 Existing method retention time information can be used because accurately-controlled carrier gas flow is maintained in both columns.



Application Examples

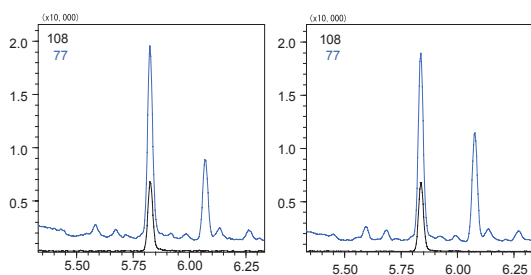
- Analysis of Pesticides and VOCs in Drinking Water
- Confirmation of Separation of Pesticide Residues in Food by Using Different Polarity Columns
- Analyses like Clinical or Flavor & Fragrance Using Different Polarity Columns

Analysis of flavor and fragrance components using complementary column phases

Application Example High-Capacity Dual-Inlet Turbomolecular Pump and Differential Vacuum System Obtain Stable Data

A high-capacity dual-inlet turbomolecular pump and a differential vacuum system that evacuates the ion source and mass analyzer independently allow the column flow rates to be set to a maximum of 15 mL/min.

With the Twin Line MS System, it is possible to perform sample analysis in one column while maintaining carrier gas flow in the other column. The vacuum system can accommodate carrier gas flow from both columns into the MS. The GCMS-QP2010 Ultra maintains a high vacuum and provides stable analytical data due to its high-capacity dual-inlet turbomolecular pump and differential vacuum system.



SIM data of chloroacetic acid methyl ester (25 ppb)
Left : Twin Line MS analysis Right : Single column analysis

Sensitivity Comparison Table

Compound	Single Column	Double Column
Methamidophos	1149179	1132498
DDVP (Dichlorvos)	392962	388569
EPTC	632087	641883
Butylate	455472	442888
Acephate	1803821	1903527
MIPC (Isoprocarb)	1029203	1052476
BPMC (Fenobucarb)	1527113	1544812

Column flow rate 1.7 mL/min
Column total flow rate 3.4 mL/min

Configuration Examples Variety of System Configurations is Possible

Line 1	Line 2
SPL (AOC-20) Pesticides (Drinking water)	SPL (AOC-20) Formaldehydes, Haloacetic acids, Phenols
SPL (AOC-20) Liquid sample injection of flavor & fragrance: Low polarity column	SPL (AOC-5000) SPME injection of flavor & fragrance: Low polarity column

Line 1	Line 2
SPL (AOC-20) Pesticides, Diethylhexyl phthalate	HS Mold odor
Formaldehydes, Haloacetic acids, Phenols	Mold odor
Automotive air freshener	Automotive air freshener
SPL (AOC-20) Formaldehydes, Haloacetic acids, Phenols	P&T VOCs
Formaldehydes, Haloacetic acids, Phenols	Mold odor

The above tables show examples of system configurations using the Twin Line MS kit. Equipping two automatic liquid sample injection systems (AOC-20) enables switching the line for continuous analysis. In a combination of AOC-20 and HS, automatic switching of continuous analyses is possible in batch-run processes. For other configurations and applications, please contact your Shimadzu representative in advance.

<Specifications and Conditions>

- Available Number of Column Connections: 2 columns
- The maximum temperature of the GC temperature program is subject to the condition of the column, whichever maximum temperature is lower
- Column O.D.: 0.4 mm (equivalent to 0.25 mm I.D. capillary column)

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