

VARIAN, INC.

210-MS

ION TRAP MASS SPECTROMETER



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VARIAN, INC. 210-MS

GC/MS Solutions to Match Your Requirements

The 210-MS Ion Trap Mass Spectrometer, together with a Varian 431-GC, can be configured for manual injection by casual users or for cost-effective, high throughput in routine laboratories. A range of accessories is available to create solutions that address your workflow.

Application Solutions Include:

- Environmental analysis
- Food analysis
- Flavor and fragrance analysis
- Industrial measurements
- Forensic monitoring
- Toxicology



Simply configured, the 210-MS can be used as a manual system for non-specialist users.



For routine, high-throughput analyses, choose the 210-MS with the 431-GC and the CP-8400 AutoSampler.



Soil/Drinking Water Analysis. Use the Archon™ AutoSampler, Stratum PTC Purge and Trap concentrator with a Varian 431-GC and 210-MS for the measurement of Volatile Organic Compounds (VOCs) in drinking water, wastewater and soil.

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Performance and Productivity

The Varian 210-MS Ion Trap Mass Spectrometer delivers MS productivity in a package designed to conserve your bench space and your budget. In just 24 inches (61 cm) of linear bench space, the powerful combination of the Varian 431-GC and 210-MS offers:

- Accurate identification and quantitation of analytes
- Simple and robust operation to enhance productivity

A single EI-only configuration is designed for routine users, yet delivers remarkable performance. Detect challenging analytes at low picogram levels on-column. Take advantage of a wide dynamic range (greater than 10^4 , compound dependent) for reliable quantitation.

The GC, MS and autosamplers are controlled by Varian MS Workstation Software. The software provides simple control of all components, allowing routine or extensive qualitative and quantitative data review, and reporting.

Standard and custom libraries provide confident identification of analytes during qualitative analysis. Selected Ion Storage (standard), allows effortless and efficient removal of matrix and background ions. The absence of an ion source and lenses means this ion trap MS rarely needs cleaning, so you can spend more time analyzing samples.

Varian offers a large selection of industry-leading capillary columns to suit any application. Our FactorFour™ ultra-low bleed columns are ideal for MS detection along with other accessories, such as injector liners, carrier gas filters, and a selection of sample preparation products.

When you combine this outstanding performance with expert applications assistance and a truly global support team, the Varian 210-MS becomes your productivity engine!



The Varian 210-MS and 431-GC make GC/MS accessible to routine users and laboratories where space and budget is limited.

Reliable Results From a Robust Platform

The Sophistication and Simplicity of the Analyzer

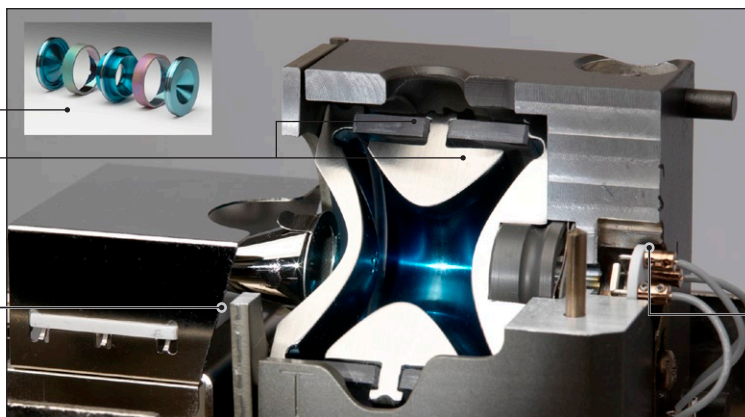
Quadrupole ion trap mass spectrometers offer performance advantages that begin with the most basic EI applications. The ionization and storage process occurs simultaneously at the center of the ion trap electrodes.

This process translates into outstanding analytical value:

- Highly efficient ion storage for maximum sensitivity
- Consistent response across the full mass range
- Durable, rugged performance

With just a few pieces, electrodes and spacers are easy to clean and assemble.

The pre-aligned electron multiplier makes replacement quick and easy when needed.



Because the 210-MS does not have lenses and other components of an external ion source, frequent cleaning is simply not required. When cleaning is needed, the analyzer can be removed from the MS without tools in less than two minutes. Five pieces (three electrodes and two insulator rings) are easy to clean and reassemble.

Dual filaments allow simple and fast switchover for better productivity.

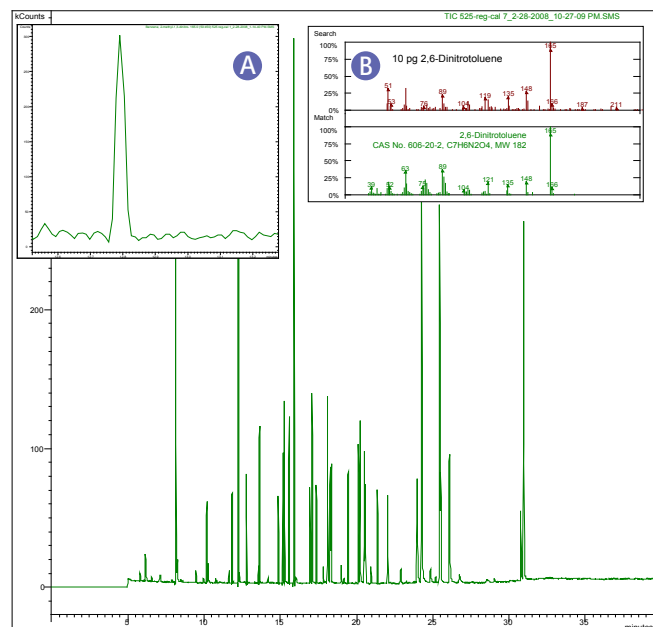
Confidence in Your Data

The 210-MS offers excellent sensitivity, wide linear range and reliable qualitative and quantitative results, week after week. Single-digit picogram levels of detection can be achieved for most analytes with accurate identification using standard libraries.

The 210-MS extends EI full scan capabilities with Selected Ion Storage (SIS) mode, allowing the selective elimination of matrix, column bleed and other common backgrounds. This easy-to-use feature provides lower detection limits, while still delivering library searchable spectra.

Compound	Correlation Coefficient*	%RSD*	MDL** (pg)
Benzene, 2-methyl-1,3-dinitro-	0.999	5.8	6.7
Cyanazine	0.999	10.3	13
Heptachlor epoxide	0.999	5.3	6.0
Endrin	0.998	5.9	6.0
Benzo[a]pyrene	0.998	7.3	16

Calibration and detection limit results for selected pollutants. *Calibration range: 50 pg - 10 ng. **MDLS were statistically derived using 99% confidence level. Nine injections were performed at 50 pg level.



Total ion current chromatogram (TIC) of selected environmental pollutants at 1 ng level. Quantitation was readily available at 10 pg level as shown in insert A by the quantitation ion plot of 2,4-dinitrotoluene. Confident identification at 10 pg injected amount was achieved using the NIST library as demonstrated by the identification of 2,6-dinitrotoluene in insert B.

The Complete Solution

Single-Point Control

Varian MS Workstation Software offers convenient and effortless single-point control of the 210-MS system while providing easy access for both expert users and novice operators. It provides:

- Intuitive navigation to simplify processing and reviewing results
- Full-featured network compatibility for convenient file management, printing and remote access
- Sequential, automated library search of up to 16 libraries for compound identification (NIST, PMW, Wiley and more)
- Extensive diagnostics to keep you informed on vital instrument functions

The software also includes a selection of standard and custom reporting capabilities designed to fulfill specific needs:

- EnviroPro™ for general and EPA-specific report requirements
- ToxPro™ Plus includes three-ion ratio reports for toxicology applications
- MultiCompound for general extended reporting
- Quick Access™ Software optimizes workflow for multi-user, high-throughput laboratories
- Access control and audit trail software for 21 CFR Part 11 compliance
- Automatic Mass Spectral Deconvolution and Identification System (AMDIS)

A Varian GC With a Choice of Inlets, Autosamplers, and Columns Creates a Complete Configuration

The Varian 431-GC is a single channel system, designed for the routine laboratory with space-saving in mind. Requiring only 12 inches (31 cm) of linear bench space, installation is easy while conveniently allowing the use of standard capillary columns.

Autosamplers

- The CP-8400 and CP-8410 are precise, versatile autosamplers delivering reliable results, with capacity for 100 samples using liquid, ambient headspace, or optional SPME sampling modes.
- The Combi PAL™ autosampler offers outstanding flexibility and productivity whether in liquid, headspace or SPME mode.

Inlets

- 1177 Split/Splitless (S/SL) Injector employs a dual-vent design to provide superior performance in the hot split or splitless modes.

GC Columns

- FactorFour™ low bleed columns deliver faster separations without sacrificing resolution. You'll enjoy greater accuracy and increased instrument uptime. Some applications include:

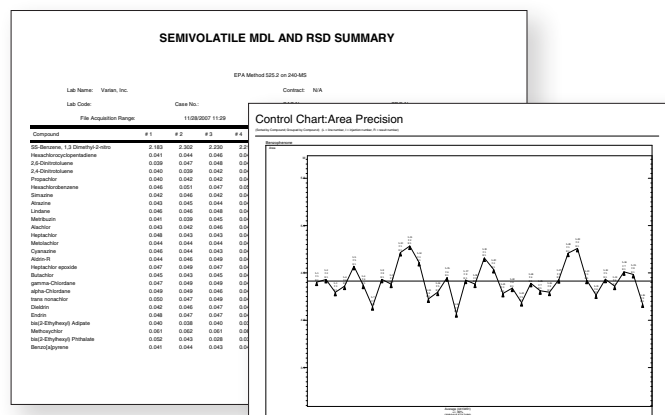
Clinical Research and Toxicology - FactorFour columns deliver robust and reproducible results at the lowest possible detection limits.

Pesticide Analysis - FactorFour VF-1701ms columns are highly inert, resulting in better response and peak symmetry for trace compounds, such as pesticides, herbicides and sterols.

Food, Fragrances and Beverages - VF-WAXms™, the latest addition to the FactorFour GC column range, is ideal for polar compound analysis using MS, as well as other modes of detection.

Gas Clean Filters

Varian's Gas Clean Filter system prevents contaminants entering your GC, which could result in damage to the column, loss of sensitivity and instrument downtime. Filters available: Oxygen, Moisture, Hydrocarbon and GC/MS.



MS Workstation delivers easy-to-read reports.

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