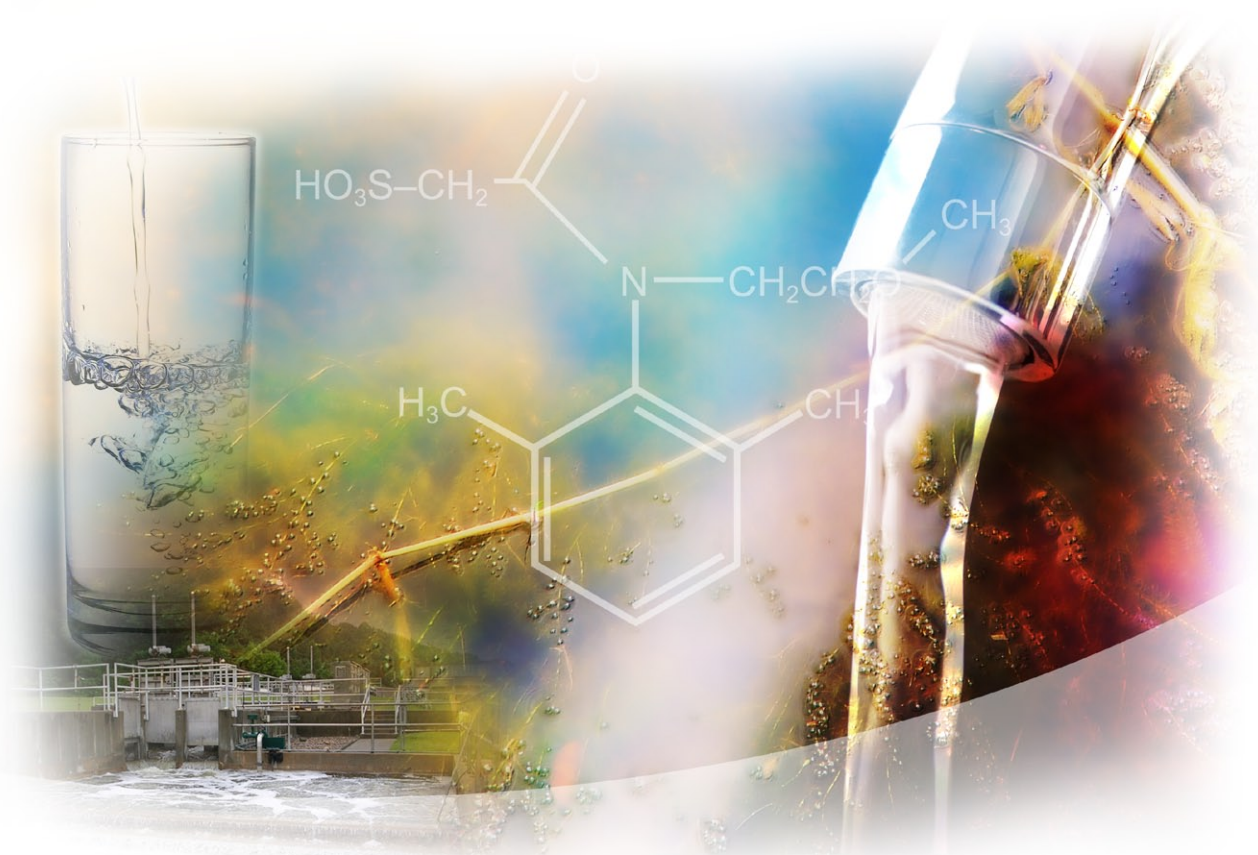


VARIAN, INC.

# Total Solutions for EPA UCMR 2

US EPA  
Unregulated Contaminant Monitoring Regulation 2



NOTICE: Varian, Inc. was acquired by Agilent Technologies in May 2010. This document is provided as a courtesy but is no longer kept current and thus will contain historical references to Varian. For more information, go to [www.agilent.com/chem](http://www.agilent.com/chem).

[www.varianinc.com](http://www.varianinc.com)



**Agilent Technologies**



VARIAN, INC.

# Total Solutions for EPA UCMR 2

Varian, Inc. provides analytical tools, including instruments, consumables, data systems, training and technical support, to help address worldwide environmental protection regulations including UCMR 2, EPA 40 CFR Part 141.

Our line of products for environmental analyses comprise LC and GC columns, LC/MS, GC/MS, GC, AA, ICP, ICP-MS, sample prep and more.

We can help you gather more information, faster and at a lower cost. Whatever type of analysis you require, look to Varian to provide a complete solution.

# Sample Prep to Reporting

To assist with the EPA UCMR 2 regulation, we offer a complete line of products from sample preparation to reporting for the analysis of 25 components under five specific EPA methods. Our solutions will enable your laboratory to report on UCMR 2 samples regarding the presence of explosives, flame retardants, pesticides, herbicides, and nitrosamines.

Method	Analytes	Sample Prep	Column	Instrument
521	N-nitroso-diethylamine (NDEA) N-nitroso-dimethylamine (NDMA) N-nitroso-di-n-butylamine (NDBA) N-nitroso-di-n-propylamine (NDPA) N-nitroso-methylethylamine (NMEA) N-nitroso-pyrrolidine (NPYR))	Coconut Charcoal Anspec P/N OV54875	VF-624, 60 m x 0.25 mm x 1.4 µm	240-MS GC/MS
525.2	Acetochlor Alachlor Metolachlor	SPEC C18 47 mm disk	VF-5ms, 30 m x 0.25 mm x 0.25 µm	240-MS GC/MS
527	Dimethoate Terbufos sulfone 2,2',4,4'-tetrabromodiphenyl ether (BDE-47) 2,2',4,4',5-pentabromodiphenyl ether (BDE-99) 2,2',4,4',5,5'-hexabromobiphenyl (245-HBB) 2,2',4,4',5,5'-hexabromodiphenyl ether (BDE-153) 2,2',4,4',6-pentabromodiphenyl ether (BDE-100)	SDVB 47 mm disk	VF-5ms, 30 m x 0.25 mm x 0.25 µm	240-MS GC/MS
529	1,3-dinitrobenzene 2,4,6-trinitrotoluene (TNT) Hexahydro-1,3,5-trinitro-1,3,5-triazine (RDX)	SDVB-RPS 47 mm disk	VF-5ms, 15 m x 0.25 mm x 0.25 µm	240-MS GC/MS
535	Acetochlor ethane sulfonic acid Acetochlor oxanilic acid Alachlor ethane sulfonic acid Alachlor oxanilic acid Metolachlor ethane sulfonic acid Metolachlor oxanilic acid	Bond Elut™ Carbon, 0.5 g in 6 mL SPE tubes	Pursuit™ PFP, 3 µm, 50 mm x 2.0 mm	310-MS LC/MS

Complete solutions for 5 UCMR 2 methods.

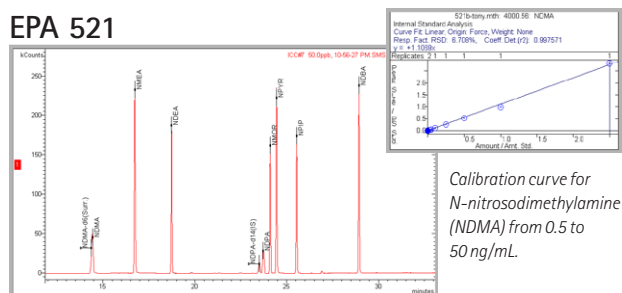
## 240-MS Ion Trap Mass Spectrometer

For accurate and reliable results for EPA Methods 521, 525.2, 527 & 529, the 240-MS GC/MS from Varian is the instrument of choice!

The Varian 240-MS GC/MS system consists of the Varian 450-GC with its proven performance and the acclaimed 240-MS MS detector. The MS provides internal, external, and hybrid ionization modes. Positive and negative chemical ionization (PCI and NCI) are included together with MS/MS to provide maximum flexibility for your lab. The extended mass range, combined with the fast scan rate, allows for precise and rapid analyses. The 240-MS GC/MS along with Varian's complete line of consumables makes it easy to comply with UCMR 2!



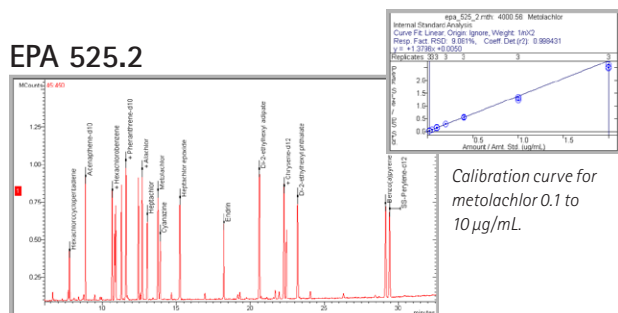
### EPA 521



GC/MS/MS total ion chromatogram (TIC) of all EPA Method 521 target analytes at 50 ng/mL. Note the excellent linearity, chromatographic peak shape, and resolution.

Varian has the only instruments currently available\* that meet the demanding requirements of EPA Method 521. The system uses liquid chemical ionization GC/MS/MS combined with programmable large volume injection (LVI) to meet the specificity and sensitivity of this method.

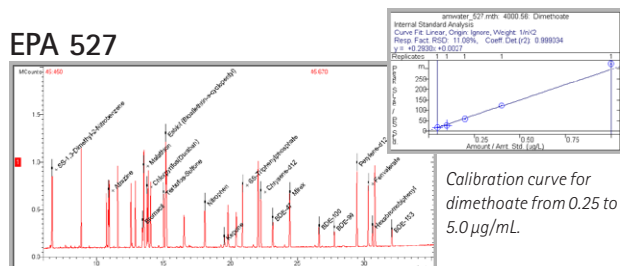
### EPA 525.2



Full scan EI/MS TIC of all regulated Method 525.2 targets along with the new UCMR2 analytes (alachlor, acetochlor, metolachlor) at 5 µg/mL.

The proven sensitivity of the ion trap for EPA Method 525.2 is well established for monitoring target analytes in the sub part-per-billion range. The Varian 240-MS GC/MS easily meets the sensitivity requirements for these compounds.

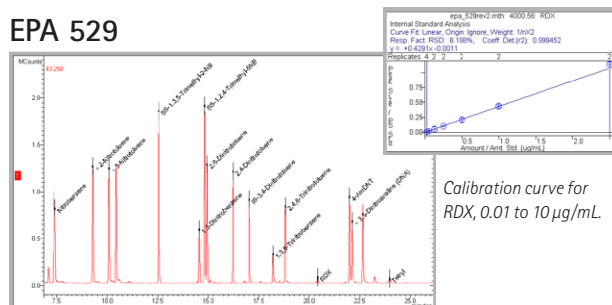
### EPA 527



Full Scan EI/MS TIC of Method 527 pesticides and polybrominated diphenylethers (PBDEs) at 5 µg/mL.

The target compounds require a very inert sample pathway and detection system for optimum performance. The 240-MS GC/MS and consumables (liner and column) deliver excellent peak shape, linearity, and sensitivity for all analytes in this method.

### EPA 529

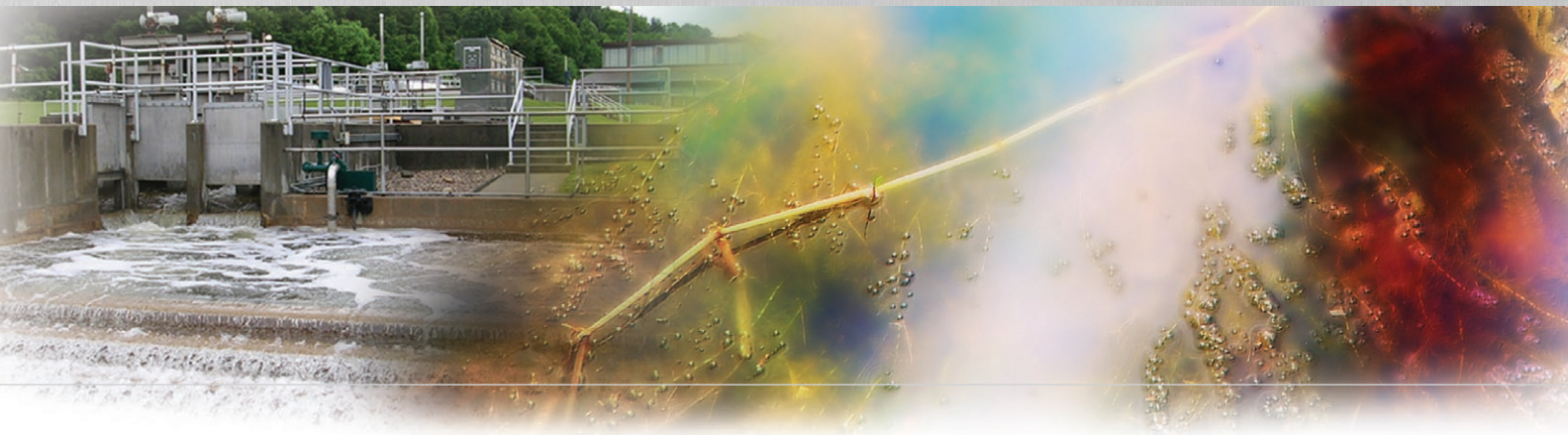


Full scan EI/MS TIC of all target explosives at a concentration of 2 µg/mL.

Analysis of explosives by GC/MS is often difficult due to losses from active injection port liners, as well as thermal degradation in hot splitless injectors. The 240-MS GC/MS provides programmable temperature vaporization (PTV), allowing users to maximize sensitivity and eliminate degradation. RDX is particularly reactive, but the 240-MS GC/MS delivers optimal results!

\*As of August 2008



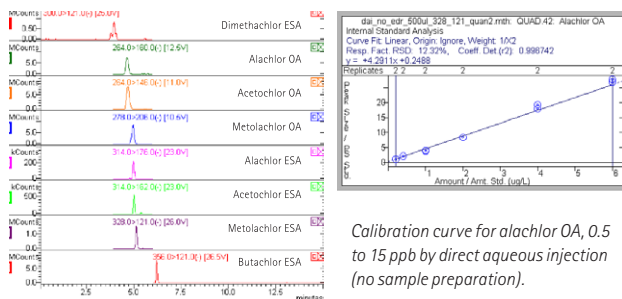


## 310-MS LC/MS/MS

The Varian 310-MS LC/MS/MS comfortably meets the requirements of EPA Method 535. It provides a 2000 Da mass range and a choice of ionization configurations to match your budget and your needs — all in less than 72 cm (28 in.) of linear bench space.



**EPA 535** requires analysis of chloroacetaldehyde herbicide degradates in drinking water. The method requires extraction of a 250 mL aqueous sample on a carbon cartridge, followed by evaporation and solvent exchange to a final volume of 1.0 mL — a 250-fold concentration. This figure demonstrates the superior sensitivity of the 310-MS, showing a 1 ppb standard prepared in reagent water and directly injected (no sample preparation).



Calibration curve for alachlor OA, 0.5 to 15 ppb by direct aqueous injection (no sample preparation).

MRM chromatograms of the six regulated Method 535 analytes at 1 ppb.

## Varian Consumables for UCMR 2 Analysis

Use genuine Varian parts and supplies to ensure the best performance and reliability from your Varian instruments.

## FactorFour™ Columns for GC/MS

- Lowest detection limits
- Greatest accuracy
- Increased instrument uptime

## Pursuit™ and Polaris™ Columns for LC/MS

- Robust method development
- Excellent resolution
- Easy validation

## SPE (Bond Elut™, SPEC C18, SDVB, SDVB-RPS)

- Easy method optimization
- Consistent sample preparation
- Saves time and money

## MS Workstation for UCMR 2

The MS Workstation Software is a complete multitasking system assuring maximum productivity. The workstation directs the analysis of each sample, executes every computation, and generates reports to your specifications. Method setup is simple, intuitive, and remarkably flexible with full control of all GC, LC, and MS modules.

- Simple, easy to use for non-experts
- Convenient analysis of large sample numbers
- Interactive data review
- Compliant reporting features

VARIAN, INC.

# Total Solutions for EPA UCMR 2

Varian offers robust instrumentation, application-based consumables, and customer-focused services, backed by our global team of product and applications experts, ready to help you solve your analytical challenges. Whether you're monitoring impurities in drinking water, designing new therapeutic drugs, or developing cleaner fuels, our solutions deliver the sensitivity, flexibility and productivity your lab requires.



## Varian Care Program

Our goal is to help you increase your productivity, maximize your uptime and achieve the highest return possible on your investment. Our experienced and highly-qualified support organization is strategically located throughout the world to ensure rapid response.

Be confident knowing that your instrument will deliver maximum performance, your users are fully trained and expert technicians will respond quickly to your support needs — because Varian cares.

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