Gas Chromatography

Key Features:

- Full-featured, automatic liquid handling solution for high capacity sampling – just set up and walk away

- Delivers advanced functionality like SPME, Headspace, Barcode Validation, Cooling/Heating/Agitation, Vortexing and Sandwich Liquid Injection

- Flexible software includes pre-set protocols to build sample preparation and injection workflows

New Injector Options to Maximize the Efficiency of Your Gas Chromatography Operation

With the new TurboMatrix™ MultiPrep+ and TurboMatrix™ MultiPrep autosamplers, PerkinElmer offers more choices than ever before to help you optimize the workflow of your gas chromatography instrument and maximize the throughput of your lab. The innovative TurboMatrix MultiPrep+ gives you the ability to perform Solid Phase Microextraction (SPME), Syringe Headspace and Liquid Handling techniques all with a single high quality instrument, while benefitting from unprecedented sample capacity that allows you to set up as many as 972 vials and let your autosampler do the rest. If you only perform Liquid Handling applications, we've got you covered as well – the TurboMatrix MultiPrep gives you an economical but greatly expanded automated liquid handling solution, allowing up to 648 vials to be set up on a walk-away basis.

The control of both autosamplers is precisely handled by PerkinElmer's flexible Sample Manager software that not only gives you pre-set functions for fast set-up, it also allows anyone to quickly and easily establish their own protocols – no programming knowledge required. And, both instruments offer versatile new preparation functionality – including Barcode Validation, Cooling/Heating/Agitation and Vortexing, with the TurboMatrix MultiPrep+ packing in additional capabilities like Serial Dilution, Internal Standard Addition and more. They even perform many of these tasks in parallel as other samples are already being analyzed.

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For the Better

Working in conjunction with a PerkinElmer gas chromatograph (GC) or gas chromatography/mass spectrometer (GC/MS), the TurboMatrix MultiPrep+ and TurboMatrix MultiPrep are a vital part of the most complete line of autosampler solutions in the industry today – and deliver the quality and performance that thousands of customers around the world have come to expect from the leader in sample handling technology, PerkinElmer.

Multiple Injection Options

The TurboMatrix MultiPrep+ delivers the flexibility to utilize as many as six different syringe types in any given run, and can quickly and automatically switch dispensing heads to handle Liquid, Syringe Headspace and SPME methods in any desired combination, making it an ideal multipurpose system for any scientist in any sized lab.

The TurboMatrix MultiPrep+ can perform ultra-high sensitivity SPME with detection limits into the parts-per-trillion range. The injected samples can come from the liquid or vapor phase, and the fiber can be pre-washed to remove unwanted solids and salts. In addition, as a Syringe Headspace injector, the TurboMatrix MultiPrep+ can be operated in basic headspace mode or set up to use up to two internal standards – all prepared and injected automatically.

Both the TurboMatrix MultiPrep+ and the TurboMatrix MultiPrep provide full-featured handling of liquid samples, with the latter an economical Liquid Handling-only instrument for any lab not requiring the full broad-based versatility of the MultiPrep+.

TurboMatrix™ MultiPrep+ Features

- Liquid Handling as well as SPME and Syringe Headspace injection techniques all in one autosampler
- High capacity – prepare almost 1,000 vials for automatic sampling with long rail option
- Further sample prep functionality including Internal Standard Addition, Sample Dilution, Reconstitution and more

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Set It and Forget It For High Volume, High Speed Results

Both the TurboMatrix MultiPrep+ and TurboMatrix MultiPrep autosamplers offer high capacity operation – up to 648 samples on the TurboMatrix MultiPrep, and up to 972 on the TurboMatrix MultiPrep+ with the long rail option.

This high sample capacity allows your lab to significantly increase throughput without adding additional staff. For example, you can prepare high quantities of samples and leave them to run reliably fully unattended – even over a long weekend. And, in the case of the TurboMatrix MultiPrep+, prepare performance of any combination of analyses – SPME, Syringe Headspace and Liquid Handling alike.

The TurboMatrix MultiPrep+ and TurboMatrix MultiPrep also speed up the entire gas chromatography analysis process through highly efficient parallel processing. Rather than starting

and completing each vial one at a time, the system prepares one sample while the sample ahead of it is being analyzed by your gas chromatography instrument, saving more time and increasing your lab's throughput even further.

In addition, the TurboMatrix MultiPrep+ provides a long sample rail option, which can be used to optimize sample capacity or attach a greater number of modules such as Peltier temperature controllers, vortexers, washing stations and other processing accessories.

Expanded Sample Handling and Preparation Capabilities

To help your lab achieve new levels of efficiency, the TurboMatrix MultiPrep+ and TurboMatrix MultiPrep autosamplers include a selection of time-saving sample preparation and handling capabilities – all performed automatically.

For example, the TurboMatrix MultiPrep options include vortexing to achieve reliable liquid homogenization; barcode validation of vials for advanced sample tracking; cooling, heating and agitation; and fast washing. The TurboMatrix MultiPrep+ provides all of these valuable automatic capabilities and provides several more, including internal standards addition, sample dilution, method-controlled changing of syringes, serial and calibration dilution, reconstitution, and in-vial extraction.

Figure 1. With the TurboMatrix MultiPrep Autosampler long rail option, you can run more samples or add more sample handling modules.

Versatile, User Friendly Software Gives You Outstanding Control of Your GC Operations

All of these capabilities and more are precisely directed by PerkinElmer's Sample Manager software, fully integrated with the TurboMatrix MultiPrep+ and TurboMatrix MultiPrep autosamplers, and supporting our Clarus GC and GC/MS products. Sample Manager lets you see every vial and handling protocol right on your PC screen in a familiar spreadsheet format, and gives you highly granular control of the autosampler – for example, allowing you to potentially perform a different technique and/or set of handling tasks with each one of hundreds of vials. Perhaps more intuitive to use than any other analogous autosampler software on the market, Sample Manager ensures that no matter how you want them done, it's fast and easy to precisely set up your list of samples and just walk away with confidence.

In addition, Sample Manager also gives you the power to create your own workflow. While, as with other autosampler software packages, many commonly performed tasks are conveniently pre-programmed by the manufacturer, Sample Manager makes it easy for you to further customize tasks exactly the way you want them when needed, such as adding or subtracting specific sample handling tasks or changing their order on particular vials, without having to be an expert programmer or taking the time and expense to call in the manufacturer's Product Support people to "get under the hood." Sample Manager makes it easy to do each and every sample your way, every time.
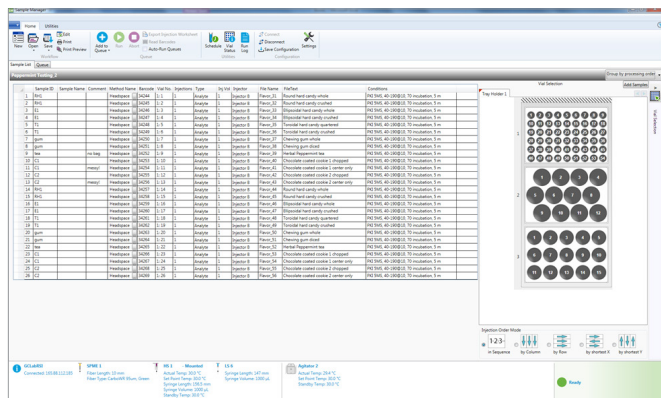

Figure 2. Example of sample acquisition list in Sample Manager.

The Newest Addition to the Broadest Line of GC Autosampler Solutions Available Anywhere

The TurboMatrix MultiPrep+ and TurboMatrix MultiPrep, like other high quality PerkinElmer autosamplers, are built to work in conjunction with our GC and GC/MS products, including the new Clarus 590/690 GC systems, which offer a full color, multi-language touchscreen display; a robust integrated liquid autosampler; and, in the case of the Clarus 690, an oven with the fastest heat-up and cool-down rate in the industry.

Building on this tradition, the TurboMatrix MultiPrep+ and TurboMatrix MultiPrep are great additions to the PerkinElmer industry-leading family of autosampler solutions, including the highly specialized, best-in-class TurboMatrix™ Headspace, Headspace Trap, and Thermal Desorption standalone autosamplers. And now, with the TurboMatrix MultiPrep+, you can switch as needed among SPME, Syringe Headspace *and* Liquid Handling analyses, while, with the TurboMatrix MultiPrep, you can have more samples and injection options than the standard Clarus GC liquid autosampler.

This broad and flexible product line from a single trusted source helps ensure that you can get the exact sample handling product you need for every area of your lab – nothing more, nothing less – and will help you achieve maximum efficiency and optimal performance from your operations budget.
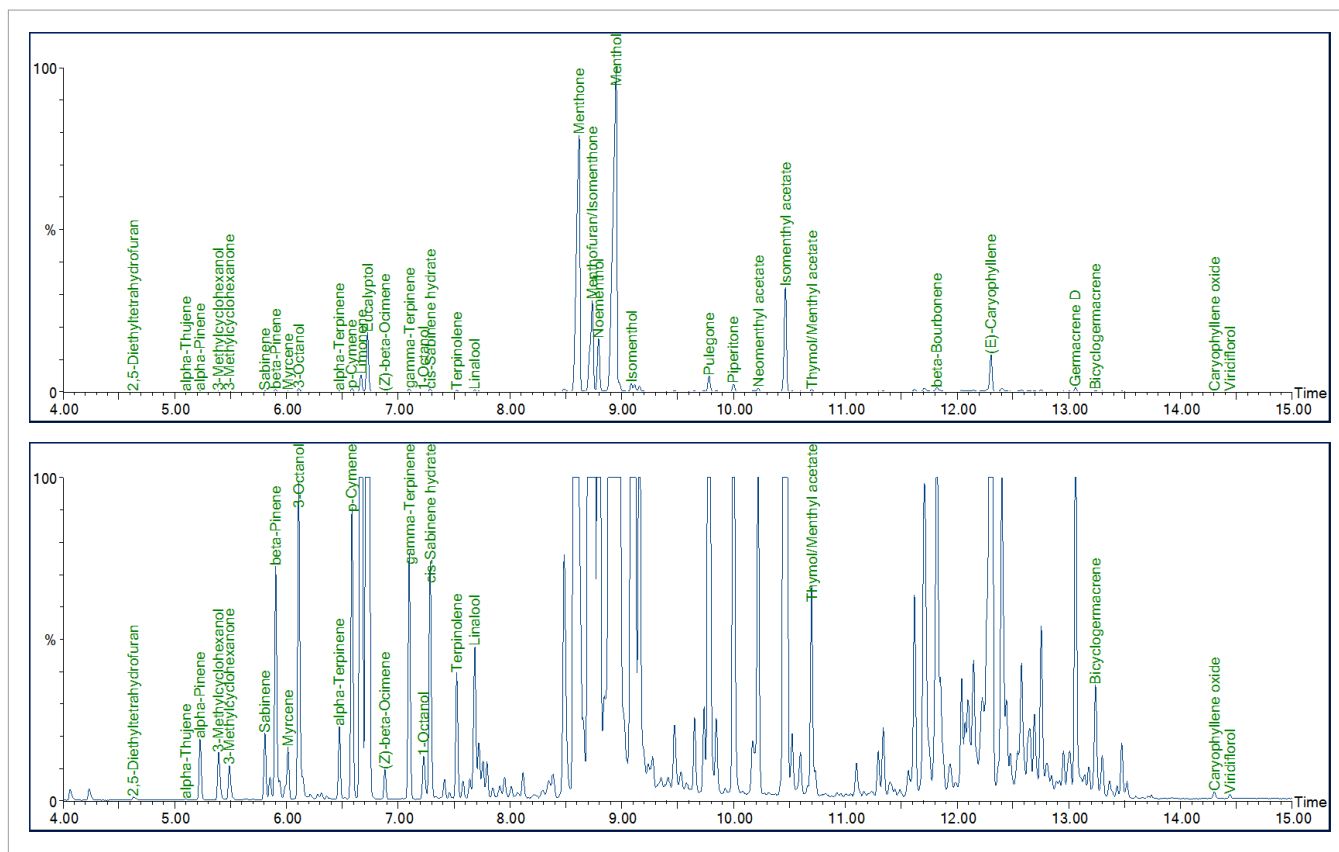

Figure 3. MultiPrep+ SPME/GC/MS chromatogram of peppermint oil.

Modules and Specifications	TurboMatrix MultiPrep	TurboMatrix MultiPrep+ #1	TurboMatrix MultiPrep+ #2
Component Description	Fixed Tool Type	Robotic Tool Change	Robotic Tool Change
Sample Rail Length	80 cm (31.5 in)	80 mm (31.5 in)	120 cm (47.3 in) Rail
Sample Capacity	Up to 4 Sample Trays 648 - 2 ml vials 240 - 10/20 ml vials	Up to 4 Sample Trays 648 - 2 ml vials 240 - 10/20 ml vials	Up to 6 Sample Trays 972 - 2 ml Vials 270 - 10/20 ml Vials
Modules Included			
Liquid Injection Head with Syringe Tool (D7 57 mm)	Yes	Yes	Yes
Standard Wash Station (4 x 10 mL)	Yes	Yes	Yes
Solvent Module	No	Yes	Yes
Sample Tray (Holds up to 3 Racks each)	Yes	Yes	Yes (Two)
Sample racks (2 mL Vials, 3 Racks of 54 Positions)	Yes	Yes	Yes
Robotic Tool Change Syringe Park Station	N/A	Yes	Yes
GC Mounting Kit	Must purchase mounting legs depending on the Clarus model		
Supported Injection Techniques			
Liquid Injection	Included	Included	Included
Syringe Headspace (HS)	No	Optional	Optional
Solid Phase Microextraction (SPME)	No	Optional	Optional
Modules Available (Not Included in Standard System)			
Headspace Kit (2.5 mL Headspace Tool, Agitator/Heater)	N/A	Optional	
SPME Kit (SPME Tool, Agitator/Heater)	N/A	Optional	
SPME Fiber Conditioning Module	N/A	Optional	
Vortex Mixer	Optional	Optional	
Agitator/Heater	Optional	Optional	
Barcode Reader	Optional	Optional	
Large Wash Module (2 x 100 mL)	Optional	Optional	
Large Solvent Module (3 x 100 mL)	Optional	Optional	
Standard Wash Station (4 x 10 mL)	Optional	Optional	
Fast Wash Module	Optional	Optional	
Standard Wash Waste Port	Optional	Optional	
Peltier Tray (Holds 2 Racks of 2 mL and/or 10 mL Vials)	Optional	Optional	
Sample Tray (Holds 3 Racks)	Optional	Optional	
Sample Rack (2 mL, 54 Positions)	Optional	Optional	
Sample Rack (10/20 mL, 15 Positions)	Optional	Optional	
Liquid Injection Head with Syringe Tool (D7 57 mm)	Optional	Optional	
Liquid Injection Head with Syringe Tool (D7 85 mm)	Optional	Optional	
Liquid Injection Head with Syringe Tool (D8 57 mm)	Optional	Optional	
Syringe Headspace (HS) Tool	N/A	Optional	
Solid Phase Microextraction (SPME) Tool	N/A	Optional	
Extra Park Station for up to 3 Injection Tools	N/A	Optional	

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For a complete listing of our global offices, visit www.perkinelmer.com/ContactUs

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