Agilent

Trusted Answers

Consistent, Accurate, and Safe Sample Preparation

Agilent 7696A sample prep workbench

Agilent Technologi

Enhance the Consistency of Manual Sample Preparation and Standards Development

Your results are only as reliable as your sample prep. That is why the Agilent 7696A sample prep workbench combines precise automation with an intuitive software interface to eliminate variability in dilution, extraction, standards addition, and other key steps. This versatile tool also significantly reduces exposure to hazardous solvents for greater long-term peace of mind.

All prepared samples are finished in 2 mL vials that are compatible with most GC and LC autosamplers—regardless of manufacturer—for direct analysis without transferring to other sample containers.

Gain confidence in your sample prep

Manual sample prep is tedious and inherently variable. Such inconsistency can lead to time-consuming rework, wasted supplies, and the lingering uncertainty that your samples are not prepared the way your protocols—or regulatory requirements—dictate. In addition, direct exposure to hazardous chemicals can jeopardize the health of you and your team.

Now Agilent has eased these frustrations with a standalone sample preparation instrument that is as reliable, precise, and accurate as our GC and LC instruments:

- Maintaining precision at significantly lower volumes
- Minimizing variability between analysts
- Reducing the need for costly rework
- Lowering health and safety risks

Drag-and-drop software simplifies your common sample prep steps

Unlike cumbersome sample prep robots, the 7696A workbench requires no complex programming and can run unattended for hours. Its user-friendly, templated software is easy to master, allowing you to concentrate on the chemistry—not the programming.

Sample preparation backed by decades of chromatography innovation

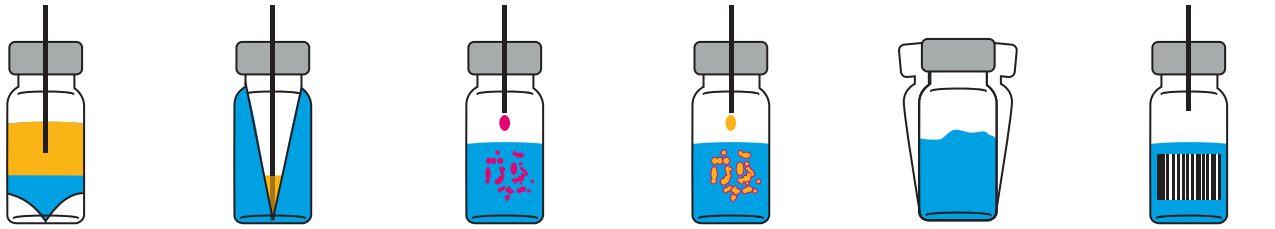
The 7696A workbench is backed by five decades of Agilent GC and LC expertise, so you know it will perform as reliably as our world-renowned analytical instruments. In addition, our top-rated service professionals understand your workflow, and are always ready to deliver the personalized support you need for maximum productivity.

Agilent 7696A sample prep workbench

The instrument automates tedious, often error-prone steps in your sample prep process. It is suitable for most HPLC, GC, LC/MS, and GC/MS applications.

Sophisticated automation to fit your unique applications

These versatile tools and capabilities ensure that your sample prep meets the standards of your high-quality workflow.



Liquid/liquid extraction | Small-volume sampling | Reagent and standard addition | Dilution/aliquoting/ reconstitution | Heating/mixing | Barcode reading

Plus... flexible sample tray heating and Peltier cooling.

Jump-Start Your Workflow with the Latest Automation Technology

Maintain sample prep consistency and reproducibility, day in and day out

From small, specialized runs to high-volume studies, the 7696A workbench helps you process samples more consistently, so you can generate your best data right from the start. Features and benefits include:

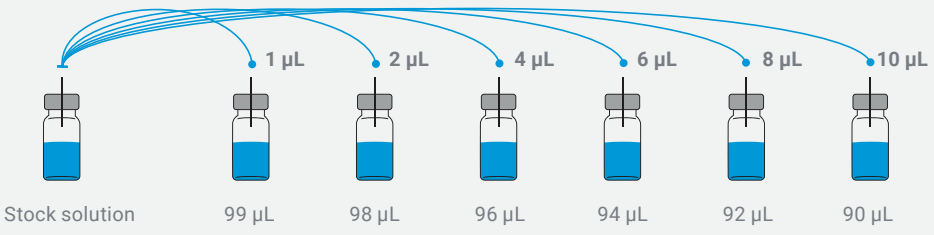
- The capacity to hold 150 vials (2 mL)
- Single-position heater (25 to 80 °C)
- Vortex mixing action
- Liquid handling towers for precise, reproducible dispensing and transfer
- Fume hood helps maintain a safe working environment
- Energy-efficient optional Peltier cooling simultaneously heats a single vial and cools a second 50-vial tray (40 to 5 °C)

Dramatically decrease variability errors

Manual sample prep adds variability day to day and from analyst to analyst, which may lead to questionable results and frequent costly rework. But the 7696A workbench virtually eliminates variability concerns—and provides tracking with a written record of steps performed and resources used.

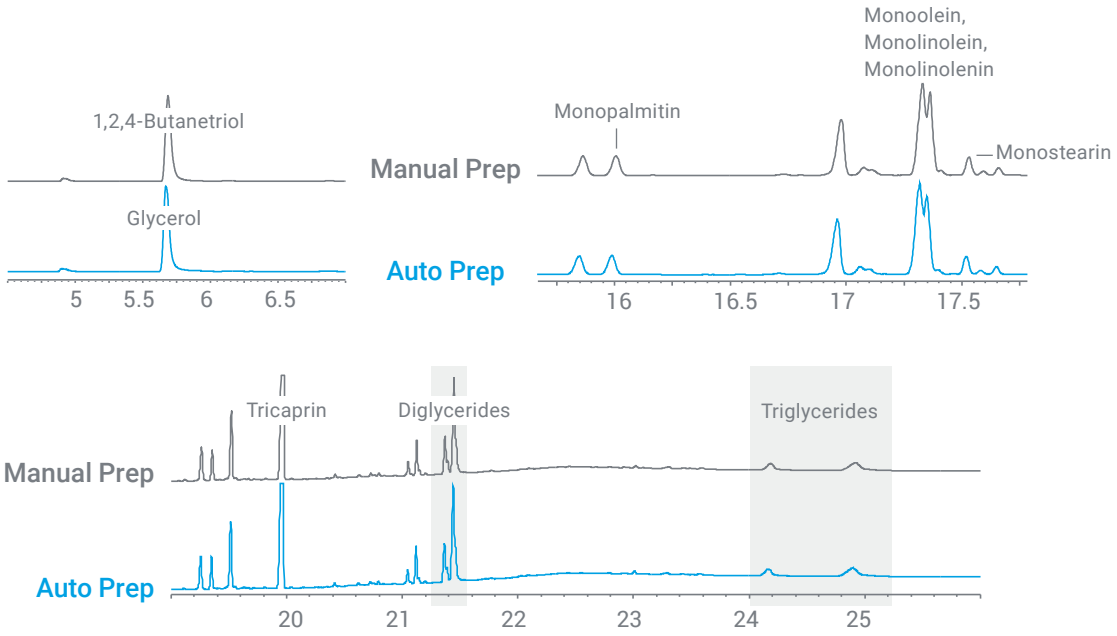
Linear dilution: calibration curve standard preparation

Calibration standard preparation with the 7696A workbench is consistently more reproducible than manual preparation.



Analysis of glycerins in biodiesel

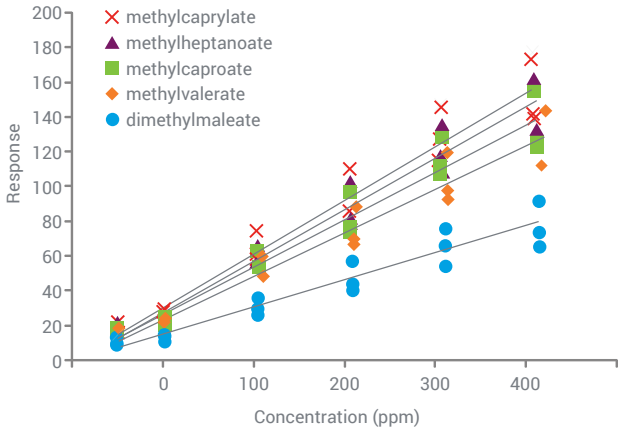
In this example, the following steps were performed both manually and with the 7696A workbench: (1) addition of ISTDs (butanetriol and tricaprin); (2) derivatization with MSTFA; (3) reaction for 15 minutes; (4) quenching with n-heptane. The chromatograms highlight the outstanding precision and reliability of the 7696A workbench for free and total glycerins.



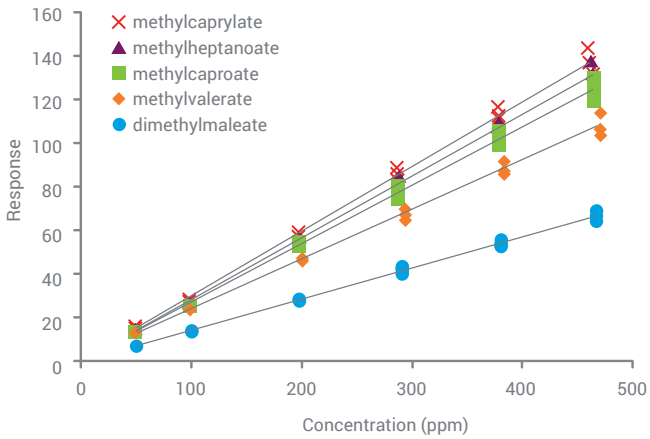
Creating standards can be less of a chore

Here you see a side-by-side time comparison of calibration curves created manually and with the 7696A workbench. Note that the linearity of standards prepared by the 7696A workbench is as good—or better—than those prepared manually.

Manual



7696A workbench



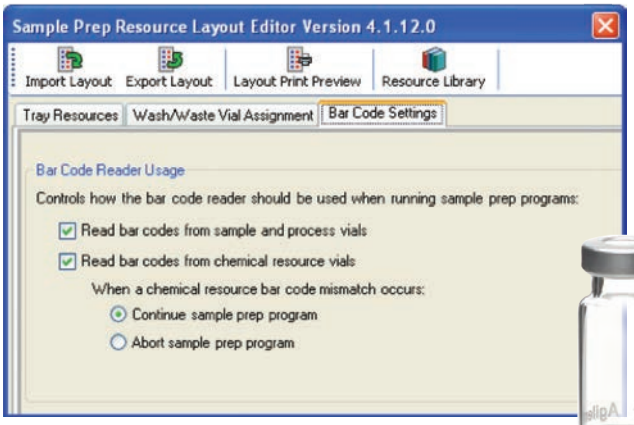
Save time and money, while protecting the environment

With the 7696A workbench, you can be confident that your samples are prepared correctly the first time—reducing the amount of wasted solvent, glassware, pipette tips, and reagents. The 7696A workbench's automation capabilities, along with its ability to fit under most fume hoods, also reduces lab workers' exposure to derivatizing reagents, acids, bases, and other hazardous chemicals.

Genuine Agilent supplies ensure sample prep consistency

As a global leader in life sciences, diagnostics, and applied chemical markets, Agilent can offer you the widest selection of both GC and LC vials, syringes, and other sample prep supplies. All are manufactured to our demanding specifications, tested under the strictest conditions, and backed by unmatched technical support—plus a 90-day warranty from the date of shipment.

Data Security and Seamless Traceability for GC and LC Sample Preparation



Barcode support for samples and resources

- Confirms sample identity
- Ensures that the correct solvent vial is being used

Transferable well-plate LC vial rack option

- Makes it easy to transfer finished samples and standards to an LC sampler that accepts well-plate vial racks.
- Both the LC vial rack and workbench adapter tray are automatically recognized by the workbench hardware and software for fast, easy transfer of your sample and sequence information.

You can use the transferable well-plate LC vial rack to integrate centrifugation and evaporation into a workbench prep method. It is necessary, however, to manually transfer the rack to a centrifuge or vacuum evaporator equipped with an appropriate rotor.

Agilent Vials, Caps, and Syringes Ensure Maximum Uptime and Peak Performance

Designed to complement your sample introduction device, our certified vials, caps, syringes, and other supplies are engineered and packaged with the same reliability you expect from Agilent instruments.

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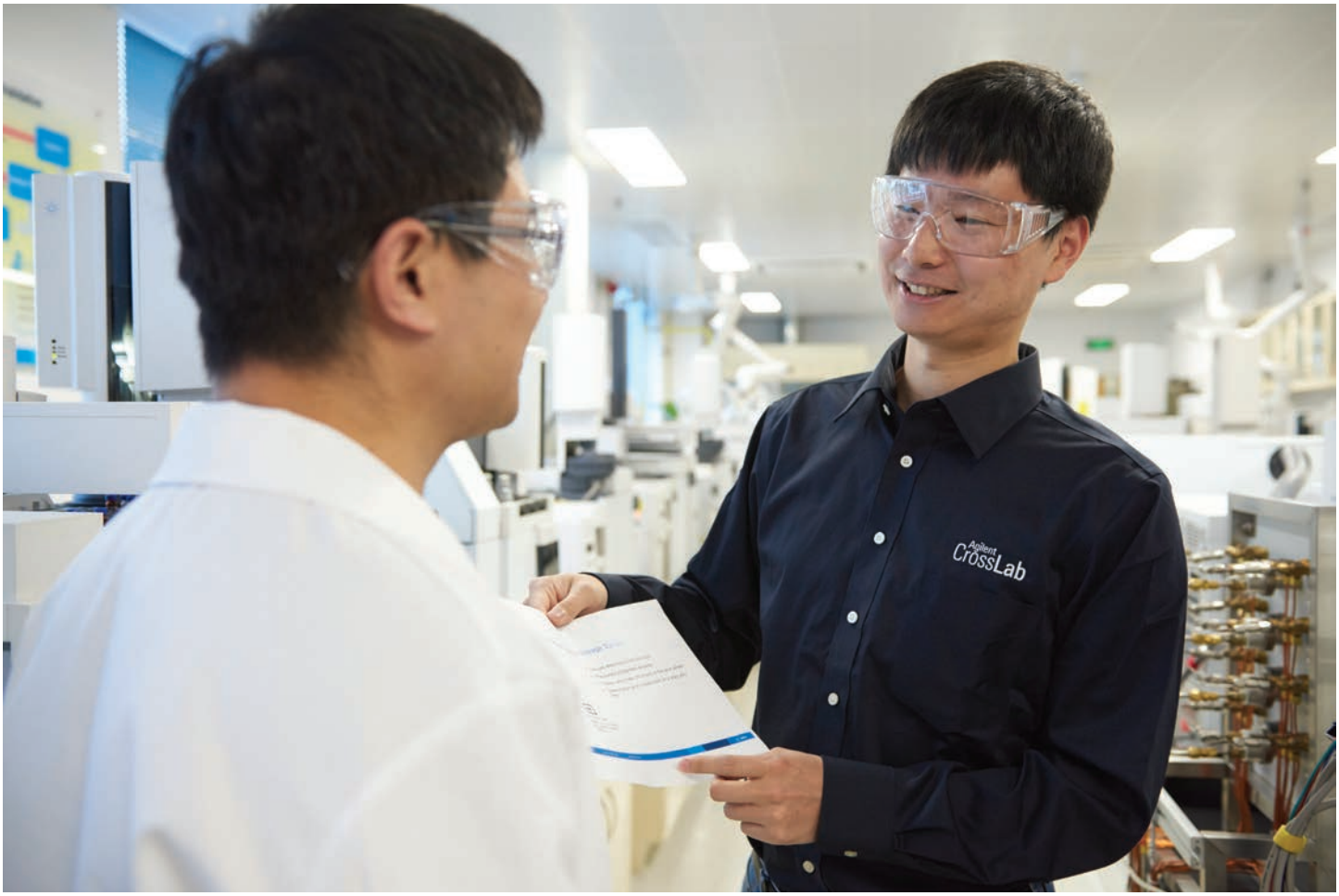

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CrossLab is an Agilent capability that integrates services, consumables, and lab-wide resource management to help laboratories improve efficiency, optimize operations, increase instrument uptime, develop user skill, and more. Our industry-leading services keep your instruments running at peak performance, and include instrument technology refresh, application consulting, repairs, preventive maintenance, compliance verification, and education.

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Convert a Manual Method for Use on the 7696A Workbench

The 7696A workbench automates sample preparation procedures. However, there are some instances when they must be scaled for the appropriate volumes. This example—biodiesel analysis based on EN14105:2011 regulations—demonstrates the ability of 7696A workbench to prepare samples for analysis on the 8890 GC. The method exceeds the regulated requirements and provides greater consistency in the results than manual preparation.

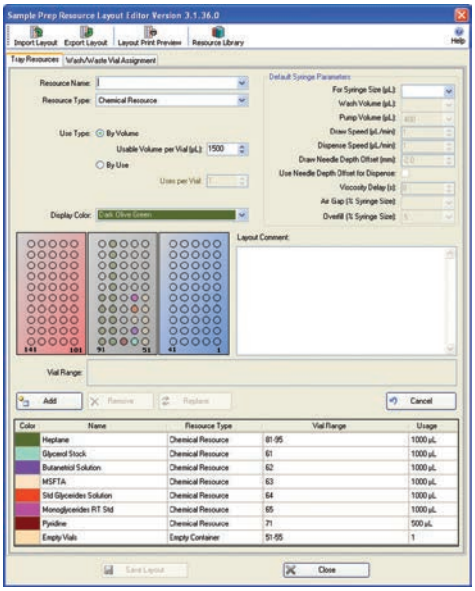
Scaling a method can be a simple procedure. In this table, you see the conversion of the manual method to one on 7696A workbench. The homogeneous nature of the sample coupled with the sensitivity of the GC system makes scaling possible. Each of the steps in the sample preparation procedure has been scaled to fit the size of the vials, while still achieving the required sensitivity and precision for the method.

Step	Manual Method	Convert	7696A Workbench Method 10:1 Scaling
1	Accurately weigh 100 mg sample into 10 mL vial	→	Accurately weigh 10 mg sample into 2 mL vial (manual step)
2	Add 200 µL of pyridine	→	Add 20 µL of pyridine
3	Add 80 µL of butanetriol solution	→	Add 8 µL of butanetriol solution
4	Add 200 µL of glycerides solution	→	Add 20 µL of glycerides solution
5	Add 200 µL of MSTFA	→	Add 20 µL of MSTFA
6	Mix	→	Mix
7	React for 15 minutes	→	React for 15 minutes
8	Add 8 mL of n-heptane	→	Add 800 µL of n-heptane
9	Mix	→	Mix

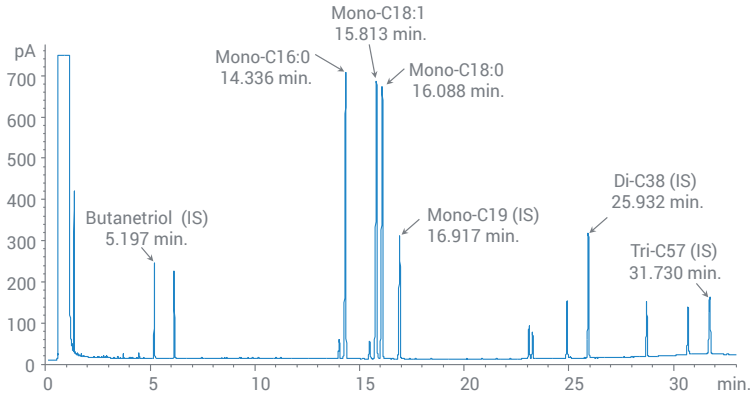
Conversion of manual method sample preparation to automated 7696A workbench. The 8890 GC system has more than enough sensitivity to allow for scaling and to meet expected results.

The resource map for the 7696A workbench provides a visual representation to assist setup of the sample preparation method. Use of colored vials, found in the quick reference guide, ensures an easy-to-understand and simple-to-operate method.

Resource Name	Vial Range
Heptane	81–100
Glycerol stock	61
Butanetriol solution	62
MSTFA	63
Standard glycerides solution	64
Monoglycerides RT standard	65
Pyridine	66
Empty vials	51–56

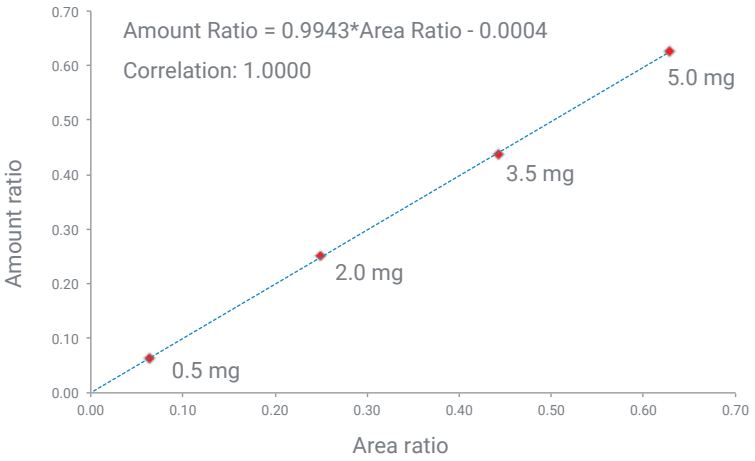


Layout of the resources that the 7696A workbench will use to prepare the standards and samples.



7696A workbench-prepared monoglyceride retention time standard

The calibration curve, shown in this figure, demonstrates the 7696A workbench's ability to provide a calibration curve automatically. It is still possible to manually create the calibration to the same level. However, the 7696A workbench is able to provide this, freeing the chemist to perform other tasks.



Glycerol calibration prepared using the 7696A workbench

Once the sample preparation procedure has been set up, standards are prepared by the 7696A workbench. This figure shows one of the standards that was prepared using the method from the analyzer. The retention time standard is used to ensure that the method criteria retention time repeatability is met and maintained over time.

Dedicated, Intuitive Software Makes Sample Preparation as Easy as 1-2-3

The 7696A workbench software puts the power of automation at your fingertips. Using an intuitive, icon-driven interface, you can create customized sample prep routines in three simple steps.

1. Define your sample prep resources

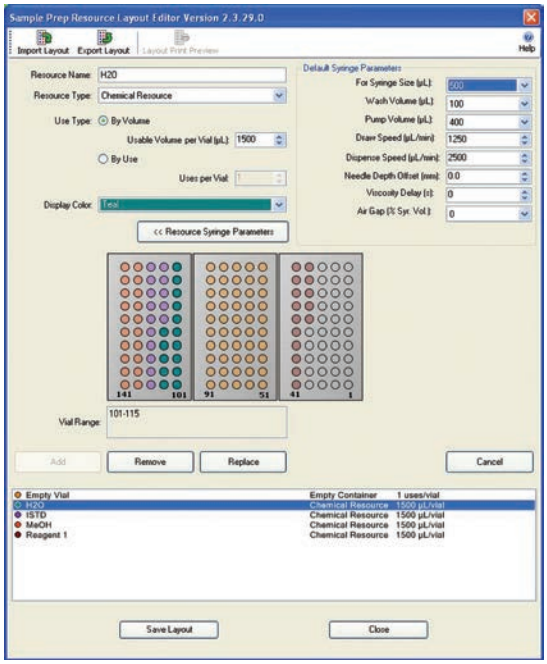
The Resource Manager screen makes it easy to designate and keep track of solvents, reagents, standards, empty vials, and other key supplies using a color-coded graphic interface. The software also monitors chemical supply levels and automatically prompts you when replenishment is needed.

2. Create your method

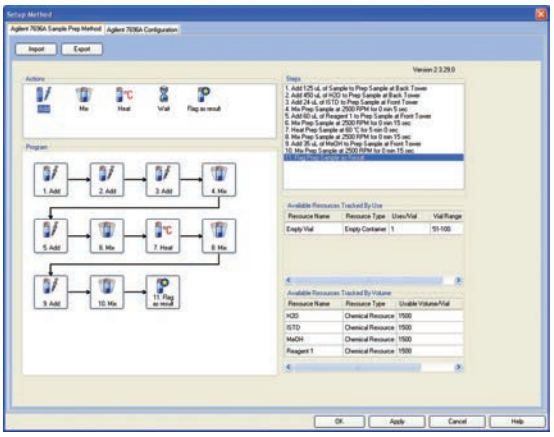
The Method Editor screen lets you automate and sequence the most common sample prep tasks, such as adding, mixing, heating, and waiting, with drag-and-drop speed. Graphical and textual displays tell you at a glance which steps will be performed, and in what order. And method templates allow anyone—regardless of skill level—to develop customized sample prep methods with confidence.

3. Decide how many samples you want to prep

Once you have identified your sample prep resources and method steps, the Easy Sequence screen allows you to specify how many samples you wish to prepare.



Resource Manager screen



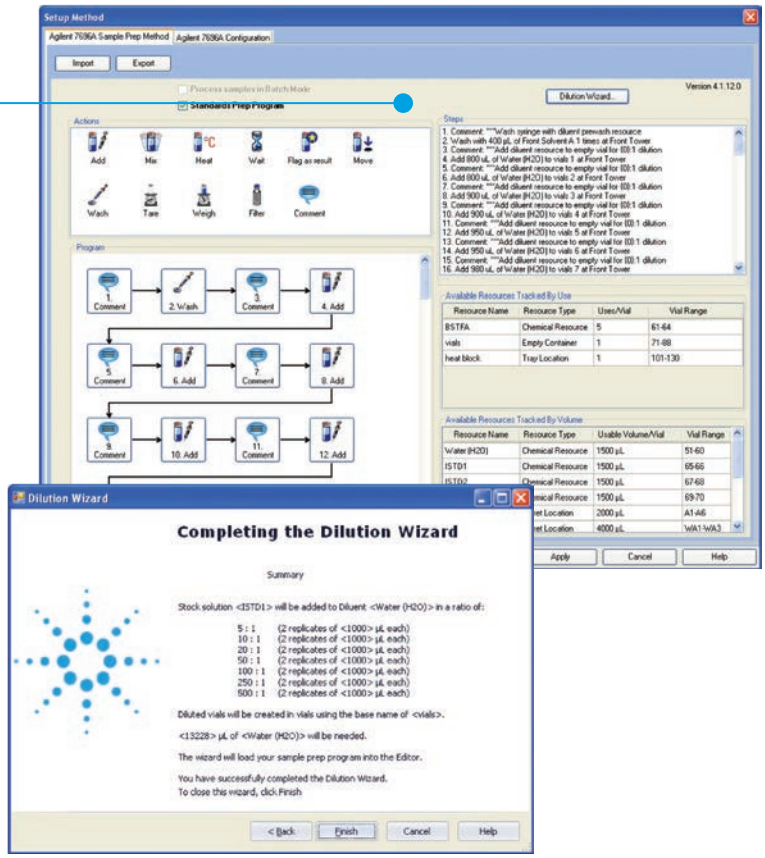
Method Editor screen

Dilution Wizard

This integrated software tool lets you create a standards prep method in just three easy steps:

1. Enter the final volume of each standard.
2. Input the number of vials you need for each standard level.
3. Specify your desired dilution ratios.

The Dilution Wizard will then create a ready-to-use standards prep method that can be edited as easily as any other workbench method.



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