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## Equipment & Instruments for Analytical Chemistry

# ANALYTICAL CHEMISTRY WORKFLOW



Sample Prep

Electrochemistry

Chromatography

Spectroscopy

Physical Measurement

Lab Essentials

## VWR Has All You Need for Analytical Chemistry

Now more than ever, Analytical Chemistry represents a range of rapidly evolving techniques, methods, and enabling technologies which remain critical to solving the many challenges in biomedical research, environmental and forensic work, as well as clinical diagnostics and materials science.

Whether you employ classical wet chemistry techniques or the most sophisticated, modern, high-performance analytical instrumentation, VWR is proud to bring you an impressive portfolio of reagents, chemicals, equipment, consumables, and tools that you use every day in Chromatography, Spectroscopy, Electrochemistry, and Physical Measurements.

VWR complements this comprehensive Analytical Chemistry portfolio with a complete range of sample preparation products, as well as Lab Essentials, including safety, personal protection, and waste disposal products. In addition, we offer a broad range of technical, validation, and e-business services that can help you run your lab more efficiently, and further optimize your logistic and purchasing services.

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## VWR® Universal Homogenizing Package



The VWR® Deluxe Universal Homogenizing Package is designed for use with all types of samples, even tough or stringy. This package allows the flexibility to process tubes ranging from 1.5–50mL as well. The 7mm and 10mm saw-tooth generator probes provide fast and efficient operation. From soft to tough samples, both saw-tooth generator probes provide extra cutting action during homogenizing, ensuring fast and complete sample breakdown. The package is supplied complete with stand assembly for hands-free homogenizing within sizes ranging from micro-tubes to large tubes, without having to hold the homogenizer unit.

The VWR® Deluxe Universal Homogenizing Package includes VWR® 200 Homogenizer unit, 7x95mm saw-tooth generator probe, 10x115mm saw-tooth generator probe, and stand assembly.



Specifications	
Electrical	120V
Volume Range	1.5-50 mL Tubes
Speed Range	Analog: 5,000-35,000 rpm (with Separate ON/OFF Switch)

Description	Cat. No.	Each
VWR® Deluxe Universal Homogenizing Package	10032-334	2988.59
VWR® Standard Universal Homogenizing Package	10032-332	2683.28

## VWR® Mini Hotplate Stirrer, 120V



Rugged, compact hotplate stirrers feature an ergonomic design and are ideal for educational labs. These units can heat and stir up to 1000mL of water. Durable 5x5" cast aluminum top plate will not chip or crack, and provides a uniform heating surface. Bi-metallic thermostat offers reliable temperature control. Powerful heater reaches maximum temperature in minutes. Powerful motor and magnet deliver reliable and consistent stirring.

The built-in support rod holder with locking knob accepts an optional support rod and clamp kit. Kit includes 45.7cm (18") support rod, thermometer extension clamp, three-prong medium swivel clamp, and hook connector. Optional support plate allows hot plate to be mounted to lab frames or ring stands.

**Ordering Information:** The 120V units include a 183cm (72"), 3-wire cord and plug. All units include a five-year limited warranty on parts and labor.

TUV listed. CE marked. RoHS compliant.



Electrical	Maximum Capacity	Speed Range	Temperature Range	Cat. No.	Each
120V, 50/60 Hz	1000 mL	100–1200 rpm	to 375°C	10153-308	438.82

# Omni Mixer Laboratory Homogenizers

## Unsurpassed Quality and Versatility

600 AND 1800 WATT VARIABLE SPEED MOTORS  
 COMPATIBLE WITH A WIDE ARRAY OF GENERATOR PROBES,  
 SEALED CHAMBERS AND BLADE ASSEMBLIES.

Since 1956 the Omni Mixer and Macro Homogenizers have been synonymous with laboratory homogenizers. Referenced in over 5,000 publications, Omni Mixers can be depended on for years of trouble-free operation.

Specifications	Omni Mixer Homogenizer	Omni Macro Homogenizer
Power	115V, 600W	115V, 1800W
Volume Range	0.25 mL to 10 L	0.25 mL to 30 L
Speed Control	1,000 to 18,000 rpm	1,000 to 20,000 rpm

Description	Cat. No.	Each
Omni Mixer Homogenizer	10015-892	2850.00
Omni Macro Homogenizer	10015-894	4195.00
Accessories		
50 mL Stainless Steel Chamber with 1" Blade	10015-896	995.00
50 mL Stainless Steel Chamber with 10 mm Generator Probe	10015-898	1390.00
400 mL Stainless Steel Chamber with 2" Blade	10015-904	995.00
400 mL Stainless Steel Chamber with 20 mm Generator Probe	10015-906	1725.00



**OMNI**  
 INTERNATIONAL  
 The Homogenizer Company™



Omni Mixer

Omni Macro

## VWR® Gravity Convection Oven

VWR Gravity Convection ovens are the optimal choice for heating and drying of delicate samples that require a gentle airflow. Powders and light samples will not be blown away by active air movement. Processes such as sterilization or heated storage are followed economically. Air exchange can be controlled by a damper – open it for drying to remove humidity quickly, and close it for heat treatment with highest requirements for temperature accuracy. Consistency – Repeatable results with outstanding temperature stability and uniformity

- Versatility – Covers wide range of heating and drying applications
- Extremely versatile with a wide temperature range, 50°C – 250°C and three bench top sizes ranging from 2.3 cu. ft – 6.2 cu. ft.
- 2 wire mesh shelves included (55 lbs. capacity each)
- Two-Year Warranty with Extended Warranty Packages Available
- cCSAus certified



Volume	Exterior Dimensions	Packaging Size	Interior Dimensions	Heat-Up Time	Recovery Time	Temperature Uniformity	Shipping Weight	Cat. No.	Each
65 L (2.3 cu. ft.)	22D x 21W x 28H"	26D x 30.7W x 39.4H"	16.3D x 13W x 19H"	25 min. to 150°C	6 min. to 150°C	± 4°C at 150°C (based on 27 sensors)	121.25 lbs.	89511-404	1829.97
105 L (3.7 cu. ft.)	22D x 25W x 32H"	29.9D x 30.7W x 43.7H"	16.3D x 17W x 23H"	24 min. to 150°C	8 min. to 150°C	± 4.5°C at 150°C (based on 27 sensors)	143.3 lbs.	89511-406	2180.98
176 L (6.2 cu. ft.)	29D x 25W x 36H"	37.8D x 30.3W x 47.2H"	23D x 17W x 27H"	28 min to 150°C	8 min to 150°C	± 5°C at 150°C (based on 27 sensors)	189.6 lbs.	89511-408	2996.97

## VWR® Vacuum Ovens



These units feature a front-mounted three-way valve for evacuation, venting and purging of inert gases (e.g., Nitrogen or Argon) with vacuum fittings on the front of the unit

Radiant warm-wall heating system optimizes uniformity and conserves chamber space for drying, curing, vacuum embedding and plating applications.

- 7.6cm (3") glass wool insulation prevents heat loss
- Silicone door gasket and positive latch door maintain seal at all vacuum levels
- Polycarbonate safety shield protects door glass
- Built-in over-temperature protection
- Vacuum level is displayed on gauges from 0 to 30 in. Hg
- Vacuum and air lines are corrosion-resistant stainless-steel tubing for optimum chamber cleanliness and long-term performance
- With two removable stacking aluminum shelves
- Easy-to-clean Type 304 stainless-steel interior chamber
- Powder-coated heavy-gauge steel exterior for durability
- Two-year warranty with extended warranty packages available



Volume	Exterior Dimensions	Interior Dimensions	Temperature Range	Temperature Uniformity	Fluctuation	Shipping Weight	Cat. No.	Each
12.5 L (0.44 cu. ft.)	41 × 43 × 44 cm (16 × 17 × 17")	30 × 20 × 20 cm (12 × 8 × 8")	Ambient +10° to 220°C	± 2.2°C at 100°C 25 in. Hg±	± 1.5°C	50 kg (110 lbs.)	89508-424	4215.25
19.8L (0.7 cu. ft.)	40 × 50 × 41 cm (16 × 19.8 × 16.25")	30 × 25 × 25 cm (12 × 10 × 10")	Ambient +10° to 220°C	± 6.0°C at 150°C, 25 in.Hg	± 1.0°C	59 kg (130 lbs.)	89508-426	3760.80
65.1 L (2.3 cu. ft.)	64 × 64 × 56 cm (25 × 25 × 22")	51 × 36 × 36 cm (20 × 14 × 14")	Ambient +10° to 220°C	± 5.0°C at 100°C, 25 in. Hg	± 1.0°C	134 kg (295 lbs.)	89508-428	7485.02

## VWR® Benchtop Chiller, 120V



VWR Benchtop Chillers are environmentally friendly and economical alternatives to tap-water cooling. The unique design maximizes precious bench space without compromising cooling and pumping power.

- Features large easy-to-read LED displays, a space-saving design, and cooling at ambient temperatures as high as 35°C.
- Compact, space-saving design
- Integrated safety features

The top-mounted fill port with spill protection cup prevents damage from potential spills when filling. The front-mounted easy-access air filter keeps the chiller running at peak efficiency.

Choice of pumps (magnetic drive centrifugal, turbine) and compressor sizes (1/2, 1/3, 1/10 HP). Chillers are supplied with two 1.3 cm (1/2") NPT x 1.3 cm (1/2") HB tubing adapters, two 1.3 cm (1/2") NPT x 9.5 cm (3/8") HB tubing adapters, and power cord. Prior to ordering, please check the specific plug configuration needed for your electrical requirements. European plug on 240 V models. Other country-specific plugs are also available.



Description	Dimensions	Maximum Pressure	Flow Rate	Temperature Range	Cat. No.	Each
<b>LS Series Chillers</b>						
1/2 HP Chiller, Centrifugal Pump	60.7L x 25.4W x 48.3H cm (23.9 x 10 x 19")	14.5 psi (1.0 bar)	3.5 gpm (13.2 L/min.)	-20 to 40°C	97058-184	4278.94
1/2 HP Chiller, Centrifugal Pump	60.7L x 25.4W x 48.3H cm (23.9 x 10 x 19")	9.0 psi (0.6 bar)	3.9 gpm (14.8 L/min.)	-20 to 40°C	97058-180	4168.53
1/2 HP Chiller, Turbine Pump	60.7L x 25.4W x 48.3H cm (23.9 x 10 x 19")	43.4 psi (3.0 bar)	2.6 gpm (9.8 L/min.)	-20 to 40°C	97058-188	4599.58

## VWR® Compact Microcentrifuges



These compact microcentrifuges are ideal for DNA, RNA and temperature-sensitive samples. Safety locking lids are equipped for biocontainment. They are autoclavable and phenol-resistant. Operation noise made by these units is less than 58 dB, softer than a normal conversation.

- Refrigerated model with pre-cool function available
- Robust and steady temperature control
- High performance; ideal for sample preparation
- Short run-up and run-down times
- Pulse button for short centrifugation runs
- Comprehensive range of rotor options available separately

Units come with a five-year warranty that extends the standard two-year warranty for an additional three years. The three year extension is a full powertrain warranty on the centrifuge only.



Description	Dimensions	Cat. No.	Each
Microcentrifuge	260 x 275 x 344 mm	10799-122	2678.00
Microcentrifuge, Refrigerated	260 x 281 x 553 mm	10799-170	6381.41

## Kjeldahl Distillation Unit, UDK 129, VELP Scientific



- Automated Operation
- High Tech
- Outstanding Reliability
- Operator Safety
- Ecology and Standards

Entry-level Kjeldahl distillation units for your analyses for different applications such as determining ammoniacal nitrogen, protein determination, nitrogen content (Kjeldahl or direct alkaline distillation), nitric nitrogen (after reduction/Devarda), phenols, volatile acids, cyanides and alcohol content.

**Automated Operation** — System runs after setting sodium hydroxide addition and distillation time.

**High Tech** — No loss of nitrogen: distillate temperature stays below threshold. Accurate dosing of reagents with high precision pumps.

**Outstanding Reliability** – Maintenance-free, resistant, patented steam generator. Patented titanium condenser for unmatched performance. Durable technopolymer splash head. Chemically-resistant technopolymer housing.

**Operator Safety** – Lever operation simplifies tube insertion / removal (all sizes). Protection screen for distillation chamber. Drip tray collects splashes. Zero pressure steam generator.

**Ecology and Standards** – Performs to AOAC, EPA, DIN and ISO standards. Incorporates TEMS™ technology\*. Automated water supply control reduces consumption.



Description	Cat. No.	Each
UDK 129 Kjeldahl Distillation Unit, 230V, 50-60 Hz	10184-140	4645.96
UDK 129 Kjeldahl Distillation Unit, 115V, 50-60 Hz	10184-146	4645.96

## There's a Labconco CentriVap® Concentrator that's JUST RIGHT for you.

Once upon a time there was a family of Concentrators.



All-in-One CentriVap® Complete™



Small Samples CentriVap® micro IR



Heat-sensitive Samples Refrigerated CentriVap®\*

DESCRIPTION	CAT. NO.	EACH
CentriVap Complete, 115V, 60Hz	<b>89259-750</b>	19,016.80
CentriVap micro IR, 115V, 60Hz	<b>89177-044</b>	8,038.69
Refrigerated CentriVap, 115V, 50/60Hz	<b>89041-240</b>	9,431.18

\* The Refrigerated CentriVap requires a rotor and vacuum pump. Contact VWR for ordering information.

Contact VWR for more options and electrical configurations.



Protecting your laboratory environment  
**LABCONCO.**



## VWR® General Purpose Water Baths

Versatile, general purpose water bath with digital display, programmable timer, programmable high limit, programmable calibration/temperature offset, 3 programmable preset temperatures and audible alarm standard.

- VWR two-year warranty
- Comes with a high clearance lid
- Three user configured temperature presets
- Built-in countdown timer
- Includes lid and removable bottom diffuser tray

**VWR** COLLECTION



Electrical	Capacity	Overall Dimensions	Watts	Working Access	Cat. No.	Each
120V, 60Hz, 3.5A	5 L	36.8L x 30.5W x 34.3H cm (14.5 x 12 x 13.5")	360W (heater wattage)	12.7L x 27.4W x 14.0D cm (5 x 10.8 x 5.5")	89501-464	717.31

# Titration Theory and Practice



In most manufacturing or processing industries, it is essential to know the exact concentration of a product, species or chemical function in order to ensure the efficiency of a process or the quality of a finished product. This is achieved by:

**Finding a characteristic of the product** directly related to its concentration. The analyst uses either physical (colorimetry, UV IR spectrophotometry, flame spectrophotometry, atomic absorption, etc.) or electrochemical methods like polarography. These methods are often long and costly, and require dedicated instruments and skilled operators.

**Dissolving the analyte and making it react with another species in solution (titrant)** of known concentration. This is what is known as titration and it can be performed manually or automatically. A titration made manually, even if using

the possibilities of electrochemical methods to detect the equivalence points, poses a certain number of difficulties for the operator, which can be time consuming to solve. Among the limitations of manual titration, the most difficult to overcome are:

- Difficulty in interpreting a curve made point by point that describes one or more poorly defined inflection points
- Irreproducibility of results that depend on factors that cannot be controlled
- Risk of human transcription errors

An automated titrator is able to relieve the operator of all repetitive and fastidious tasks, in particular:

- Control of the titrant perfectly adapted to the requirements of the

operator and of the reaction being used during the titration

- Correct measurement of the electrode signal regardless of the method employed
- Reliable and reproducible mathematical treatment of the titration curves, stored in the memory of the titrator as couples of potential or current measured against volume of titrant, leads to the security of the result
- Secure transmission of the final results and raw data for future follow up as required

A modern automated titrator is not just simply an instrument for realizing any titration. It is an indispensable tool for analytical laboratories concerned with the quality of traceability and recording of results that need to work according to the rules of Good Laboratory Practice (GLP).



To read the full article visit [vwr.com/hach](http://vwr.com/hach)

## HACH® TITRALAB® AT1000 TITRATOR

### Automatic Titration Without All the Complications

The Titrab® 1000 Series laboratory analysis systems are one touch, automatic analyzers, covering both Potentiometric Titration (AT1000 Series) and Karl Fischer Volumetric Titration (KF1000 Series) with pre-set methods that can quickly deliver accurate and reliable results straight from the box, allowing everyone in the laboratory to immediately perform accurate and reproducible titrations.

#### The 1000 Series features:

- Ready-to-use application kits for your unique application
- GLP features inside for results and calibration traceability
- Easy export of data and methods to USB (Excel format compatible)
- Simple set up



Description	Syringes	Pumps	Cat. No.	Each
Titrab AT100 Titrator	1	2	10662-256	3,137.52
Titrab AT100 Titrator	2	2	10662-258	3,541.37
Titrab AT100 Titrator	1	-	10662-252	2,474.35
Titrab AT100 Titrator	1	1	10662-254	2,806.45
Titrab, Karl Fisher Titrator	1	2	10662-260	3,945.22



Be Right™

## HACH® H-Series Benchtop Meter

- -2 to +19 pH range
- 0.1 or 0.01 pH resolution
- Up to five point pH calibration
- Automatic or manual temperature compensation

The H-Series benchtop meters are dual-technology pH (non-glass "ISFET" and traditional glass). These professional meter systems showcase a large LCD display with LED backlight, and they have the ability to accurately measure pH (ISFET or glass), mV, temperature, ORP, and ISE. These benchtop meters are engineered to give years of reliable service in the most difficult of applications.



Description	Includes	Parameters	Cat. No.	Each
Meter, GLP pH, H260G	H260G Meter Only (No Probe)	Temp, ISFET pH, Glass pH, mV, ORP, Ammonia, Nitrate, Fluoride, Sodium	89214-868	1054.38
Meter, GLP pH/COND, H270G	H270G Meter Only (No Probe)	Temp, ISFET pH, Glass pH, mV, ORP, Ammonia, Nitrate, Fluoride, Sodium, Conductivity, TDS, Salinity	89214-872	1308.15
Meter, GLP pH/COND/DO, H280G	H280G Meter Only (No Probe)	Temp, ISFET pH, Glass pH, mV, ORP, Ammonia, Nitrate, Fluoride, Sodium, Conductivity, TDS, Salinity, Dissolved Oxygen	89214-876	1554.48

Visit [vwr.com](http://vwr.com) for meter bundles.

## Lab Synergy TitroLine® 6000 Titrators



TitroLine® 6000 titrator is designed with a multitude of benefits that make it an ideal entry into the potentiometric titration and the perfect choice for applications in the field of food, water/waste water and environmental analysis. Thanks to the high-resolution, precise pH/mV and “dead-stop” measuring interface, it is possible to determine a wide range of parameters.

Additional features for the TitroLine 6000 are: high-resolution pH/mV measuring interface, measuring input for temperature measurement, measuring interface for polarizable electrodes (“dead-stop”), standard methods such as FOS/TAC, alkalinity, total acidity in soft drinks, linear and dynamic titration to equivalence point, titrations to pH, mV and  $\mu\text{A}$  end point, manual titrations and dosing tasks.



Description	Cat. No.	Each
TitroLine® Basic Unit, without Magnetic Stirrer, with Stand Rod and Titration Clamp (Z305), Power Supply (100-240V)	89429-366	6583.95
TitroLine® Basic Unit with Magnetic Stirrer (TM 235), with Stand Rod and Titration Clamp (Z305), Power Supply (100-240V)	89429-368	7221.55

## VWR® symphony™ Benchtop Meter Kits



Specially designed for use in the lab, these rugged and durable benchtop meters are versatile enough to fit your unique testing needs. These meters are simple to operate and offer an intuitive user interface allowing for easy set up and use from day one. Step-by-step on screen prompts enable both new and seasoned users to operate the meter easily and effectively, resulting in consistently accurate measurements.

- Simple to operate and maintain
- Consistently accurate and reliable measurements
- Configurable to each user's unique needs
- VWR three-year limited warranty



Description	Includes	Cat. No.	Each
B10C Benchtop Conductivity Meter with Conductivity Probe	B10C Meter (89231-676) and Conductivity Probe (89231-614)	89231-678	1311.78
B10P Benchtop pH Meter with pH Probe	B10P Meter (89231-662) and Refillable Glass pH Electrode (89231-580)	89231-664	928.13
B20PI Benchtop pH/ISE Meter with pH Probe	B20PI Meter (89231-692) and pH Probe (89231-580)	89231-694	1500.74
B30PCI Benchtop pH/Conductivity/ISE Multimeter with pH and Conductivity Probes	B30PCI Meter (89231-696), pH Probe (89231-580), and Conductivity Probe (89231-614)	89231-698	1849.26
B40PCID Benchtop Multimeter with DO Probe	B40PCID Meter (89231-684) and Dissolved Oxygen Probe (89231-624)	89231-670	2114.17
B40PCID Benchtop Multimeter with pH, Conductivity, and DO Probes	B40PCID Meter (89231-684), pH (89231-586), Conductivity (89231-618), and DO (89231-624) Probes	89231-686	2872.76
B40PCID Multimeter with pH and DO Probes	B40PCID Meter (89231-684), pH Probe (89231-580), and DO Probe (89231-624)	89231-704	2321.14

## VWR® Chromatography Refrigerators with Glass Doors and Natural Refrigerant



Swing door, upright laboratory chromatography refrigerators maintain an average temperature of 3–5°C (37–41°F). Units are equipped with low E, double-pane thermal insulated glass doors for energy efficiency. All refrigerators are supplied standard with four adjustable, heavy-duty, PVC-coated white wire shelves.



All units feature a natural refrigerant that is environmentally friendly. The R290 hydrocarbon refrigerant emits zero (0) ozone depletion potential (ODP), and three (3) global warming potential (GWP). Units are supplied standard with the LAE temperature control, which offers exterior digital display and alarm function.

- Units maintain an average temperature of 3–5°C (37–41°F)
- Equipped with energy efficient thermal insulated glass doors
- Three-year parts and labor warranty
- Additional two-year warranty on compressor parts
- Features one access port and one duplex outlet.

Electrical	Volume	Dimensions	Color	Compressor	Door Type	No. of Shelves	Temperature Range	Weight	Cat. No.	Each
115V, 5.4A	651 L (23 cu. ft.)	68.5 x 75.8 x 199.7 cm (27 x 29 <sup>7</sup> / <sub>8</sub> x 78 <sup>5</sup> / <sub>8</sub> "	White	1/3 hp	1 Door, Swinging Glass	4 Full Size	3–5°C (37–41°F)	161 kg (355 lbs.)	10791-614	4744.87

## VWR® High-Purity Nitrogen Generators



- Eliminate Dangerous Gas Cylinders from Lab
- Use for Gas Chromatography, LC/MS, ICP, and Thermal Analysis

These systems are engineered to transform standard compressed air into 99.99% or 99.9999% nitrogen. Nitrogen purification utilizes pressure swing adsorption for the removal of oxygen, carbon dioxide, and water vapor. After nitrogen is purified, the gas is filtered through high efficiency coalescing prefilters and a 0.01µm (absolute) membrane filter. The generators are enclosed in small cabinets that fit on or beneath most benchtop work surfaces. Best for carrier gas applications.



Description	Cat. No.	Each
HP Nitrogen Generator	26000-010	12,202.36
UHP Nitrogen Generator	26000-008	13,311.67

## Shimadzu Prominence HPLC/UFLC/UFLCXR



The modular Prominence HPLC series delivers accurate and reproducible data while maintaining flexibility. Capable of system pressures in excess of 9500 psi (66MPa), and accompanied by the XR lineup of columns that features a choice of seven bonded phases, the Prominence UFLCXR delivers powerful high-pressure analysis—without sacrificing performance, reliability, or ruggedness.

SIL-20A/AC autosamplers deliver virtually zero carryover and a cycle time of just 10 seconds. LC-20AD/AB/AT pumps provide unmatched gradient speed and precision. CBM-20A/Alite enables users to setup, control, and monitor their HPLC remotely. The controllers are ideal for ultrafast LC, SPD-20A/AV/M20A UV/PDA Detectors, RF-20A/Axs Fluorescence Detectors; other detector options include ELSD, RID, and CDD.



Description	Cat. No.	Each
Seven-port, 6-position solvent selection valve for AT and AD pumps	10122-460	3982.90

**PROMO CODE 3466**

Trade in your old METTLER TOLEDO (or competitor) balance and receive a 15% Total Cash Back on your new METTLER TOLEDO balance purchase through VWR.



For promotion details and to redeem your rebate, have your VWR proof of purchase (VWR invoice or packing slip) and visit [vwr.com/promotions](http://vwr.com/promotions).

Enter Promo Code 3466 in the search field and fill out the online redemption form. Be sure to enter the serial number of the model purchased.

Valid on XPE/XSE, XP/XS and MS balances 15% Cash Back based on final purchase price Rebate may not exceed \$1,000.



**PROMO CODE 4011**

**Cash In On Excellence**

Purchase a balance or analytical instrument through VWR and receive a rebate from METTLER TOLEDO. Visit [vwr.com](http://vwr.com) for a complete listing of METTLER TOLEDO products.



**\$400 Rebate**

- Excellence Plus Balances (XPE)
- Entry Level Titrators (V20/C20/G20) Benchtop Density Meters & Refractometers Melting Point Excellence (MP50)

**\$300 Rebate**

- Excellence Balances (XSE/XS)

**\$200 Rebate**

- New Classic Balances (MS-TS) EasyPlus Titrators

To redeem your rebate: Be sure to enter the serial number of the model purchased on the online form.



**PROMO CODE 4381**

Buy an MB Moisture Analyzer and get a FREE Start Up Kit



FREE Start Up Kit includes:

- Temperature Calibration Kit
- Drying Pads
- Cleaning Brush



Model	Capacity	Readability	Pan Size	Cat. No.
MB45	45 g	1 mg	Ø 3.5 in Ø 90 mm	46620-408

**PROMO CODE 4383**

**ECOLOG-NET Lab Central Monitoring System**



Limited Time Special Offer!  
Buy the System and Software Package and Save 30% on our elproLOG MONITOR Web Access module!



Order using special MP catalog number

Description	Cat. No.
Software, elproLOG MONITOR WebAccess	MP10199-688

Promotional part numbers are available for a limited time, must be used at the time of purchase, and may be ordered via the "ORDER ENTRY" link on [vwr.com](http://vwr.com). (Promotional part numbers cannot be found via Search on [vwr.com](http://vwr.com).) For assistance with ordering, please contact VWR Customer Service at 1.800.932.5000.

**PROMO CODE 4322**

Purchase Heidolph Rotovap, get case of HPLC Solvents FREE



Description	Hei-VAP Value Hand Lift	Hei-VAP Value Hand Lift, Digital	Hei-VAP Advantage Hand Lift	Hei-VAP Precision Hand Lift	Hei-VAP Precision Motor Lift
Description	Cat. No.	Cat. No.	Cat. No.	Cat. No.	Cat. No.
Glassware G1B (coated) diagonal condenser	97043-354	89495-978	97043-366	97043-396	97043-380
Glassware G3B (coated) vertical condenser	97043-358	89495-982	97043-424	97043-392	97043-376
Glassware G5B (coated) dry ice condenser	97043-362	89495-986	97043-420	97043-388	97043-372

Solvent Description	Qty	Cat No.
Acetonitrile, BDH® HiPerSolv CHROMANORM	4L	BDH83639.400
Dichloromethane (DCM), BDH® HiPerSolv CHROMANORM	4L	BDH23373.400
Hexane, BDH® HiPerSolv CHROMANORM	4L	BDH24575.400
Methanol, BDH® HiPerSolv CHROMANORM	4L	BDH20864.400



Be sure to enter your choice of free BDH Solvents on the online form.

Note: This promotion is not available in Canada.

Offers expire 12/31/2016 unless specified otherwise. Visit [vwr.com/promotions](http://vwr.com/promotions) and enter promo code in the 'FIND' box for promo details and redemption information. See promotion terms and disclaimers at [vwr.com/promotions](http://vwr.com/promotions).

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### Maintain Instrument Compliance and Enjoy Starbucks Gift Cards

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Plus, you'll receive a \$5 Starbucks eGift Card for every VWR Pre-Calibrated Pipettor\* that you register with us.

You'll also receive a reminder one month before the next ISO/IEC 17025 calibration is due on each pipettor registered with **VWRCATALYST**, along with information about utilizing our calibration services.

\*Offer applies only to VWR® Brand Pre-Calibrated Pipettors.

[vwr.com/pipette-calibration](http://vwr.com/pipette-calibration)



## PROMO CODE 4292

### Buy a VWR® Advanced Hotplate Stirrer and Receive a FREE Support Rod and Clamp Kit! Over \$125 Value

#### VWR® Advanced Hotplate Stirrers

- Excellent temperature uniformity
- Microprocessor controlled
- Cool touch, chemical resistant housing
- LED display for temperature
- Best in class 5 year warranty



Electrical	Top Plate Material	Overall Dim. (L x W x H cm)	Top Plate Dim. (cm)	Maximum Capacity (mL)	Cat. No.
120V, 400W, 3.3A	Aluminum	16.8 x 27.4 x 10.9	10.2 x 10.2	600	97042-606
120V, 400W, 3.3A	Ceramic	16.8 x 27.4 x 10.9	10.2 x 10.2	600	97042-602
120V, 1000W, 8.3A	Aluminum	25.1 x 37.6 x 10.9	17.8 x 17.8	2500	97042-646
120V, 1000W, 8.3A	Ceramic	25.1 x 37.6 x 10.9	17.8 x 17.8	2500	97042-642
120V, 1550W, 12.9A	Aluminum	33 x 45.5 x 10.9	25.4 x 25.4	6000	97042-686
120V, 1550W, 12.9A	Ceramic	33 x 45.5 x 10.9	25.4 x 25.4	6000	97042-682

### FREE Stirrer Support Rod and Clamp Kit

Use with Temperature Probes, Thermometers, or other Glass Tubes. Includes 18" (45.7 cm) stainless steel support rod, thermometer/temperature probe extension clamp, 3-prong medium swivel clamp, and hook connector.

Length (cm)	Cat. No.
45.7	11301-110

## PROMO CODE 4309

### Buy 3 VWR® Vortex Mixers, Get One FREE!

Free Vortex Mixer must be of equal or lower price than the highest value Vortex Mixer purchased.

#### VWR® Vortex Mixers

- Available in Fixed Speed, Analog, Digital and Pulsing Models
- Two modes of operation
- Best in class 5 year warranty



Description	Cat. No.
Fixed Speed Vortex Mixer	10153-834
Analog Vortex Mixer	10153-838
Digital Vortex Mixer	10153-842
Pulsing Vortex Mixer	10153-812

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## B&W Tek NanoRam Handheld Raman System



The NanoRam is a state-of-the-art handheld Raman instrument for nondestructive identification and verification of materials such as APIs, excipients, intermediates, and finished products. Compact and agile, the NanoRam can be used by non-technical users to rapidly identify samples in the lab, warehouse, loading dock or field, helping to eliminate quarantine areas and expedite materials through the manufacturing lifecycle. Utilizing Raman technology, non-contact analysis can be performed through transparent containers, all while maintaining the volume and integrity of the sample.

- High-brightness touch screen display
- Embedded 1 & 2 dimensional barcode scanner
- IP-64 dust tight and splash proof rated housing
- Sampling accessories for almost any environment
- Batch scanning option for large volume operation
- Intuitive software for technical & non-technical users
- Wi-Fi & ethernet communication for data sync & management



Description	Cat. No.	Each
NanoRam Handheld Raman Spectrometer Package	10121-488	35,558.78

## Shimadzu BioSpec-nano Small-volume UV Spectrophotometer



A state-of-the-art UV-VIS Spectrophotometer for life sciences, the small-volume, completely automated BioSpec-nano features an outstanding analysis range and excellent measurement reproducibility, making it the solution for stress-free nucleic acid quantitation and protein analysis

Key features include ultra-small sample volumes (1µL - 2µL), automatic sample mounting, measurement and cleaning, and easy operation with "Drop-and-Click" analysis. In addition, the BioSpec-nano ensures excellent measurement reproducibility, enables photometric analysis (up to 8 wavelengths), and can be equipped with an optional 5mm pathlength cell.



Description	Cat. No.	Each
BioSpec-nano Small-volume UV Spectrophotometer	89210-930	9821.90

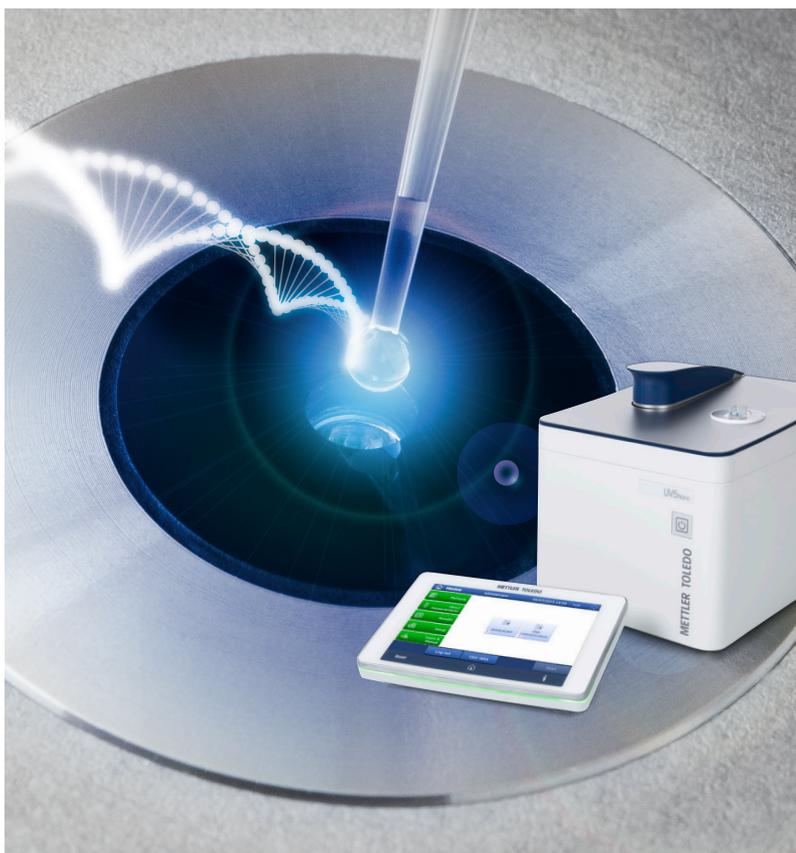
## VWR® Spectrophotometers



Fully scanning spectrophotometer for advanced measurements and quality control. Reliable, robust and easy to use instruments with a range of accessories that will support the creation of a personal spectrophotometer measuring station. The application software offers all the important methods expected from a 'universal' instrument. All housed in a robust cover with a well designed optical bench.



Description	Bandwidth	Calibration	Light Type	Wavelength	Weight	Cat. No.	Case of 1
V-3000PC, VIS Scanning Spectrophotometer	4	±0,002 A (320 - 1000 nm)	Tungsten Halogen, ±0,05% T at 360 nm	320 - 1100 nm	12 kg	10037-440	3990.55
UV-3100PC, UV/VIS Scanning Spectrophotometer	2	±0,002 A (200 - 1000 nm)	Deuterium/Tungsten Halogen, Stray Light ±0,05% T @ 220, 360 nm	190 - 1100 nm	14 kg	10037-438	5012.71



## METTLER TOLEDO

### How Much Sample Do You Need? With UV/VIS Excellence—OneDrop

The UV5Nano Spectrophotometer from METTLER TOLEDO only requires 1 $\mu$ L of sample for reliable measurements. Patented LockPath™ Technology automatically measures at two defined path lengths, allowing a wide concentration range to be measured without further dilutions. Minimize your sample, maximize performance.

Call **(800) 932-5000** or visit [vwr.com](http://vwr.com) to learn more.

Model	Mettler Part No.	VWR Cat. No.	Each
UV5 Excellence	<b>30254725</b>	<b>10811-200</b>	<b>9,000.00</b>
UV5Bio Excellence	<b>30254728</b>	<b>10811-202</b>	<b>9,800.00</b>
UV5Nano Excellence	<b>30254729</b>	<b>10811-204</b>	<b>12,000.00</b>

## EQUIPMENT AND INSTRUMENTATION

VWR offers a wide range of equipment and instrumentation to meet your needs and enable science in any workflow.

In addition to excellent product choice, VWR provides technical services to support you in all phases of your equipment and instrumentation applications. VWR offers technical support including calibration, installation, warranty, and leasing services.

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# PHYSICAL MEASUREMENT

For more information on specifications and accessories, simply enter the Cat. No. on [vwr.com](http://vwr.com).

Quicklock for Draft Shields  
Dismantle to clean in seconds

7" Touchscreen Interface  
Makes your smartphone look bad

Sophisticated Security  
Goodbye weighing errors

## Sophistication Made Simple The New MS-TS Balance

Combining 70 years of weighing expertise with brilliant intuition, designed for the everyday user.

No more waiting, no more downtime. To ensure immediate delivery, the bestselling models are now guaranteed in-stock!

Call **(800) 932-5000** or visit [us.vwr.com](http://us.vwr.com) to learn more.

Model	Capacity and Readability	VWR Catalog No.	Each
MS104TS	120g x 0.1 mg	<b>10753-566</b>	<b>4907.70</b>
MS204TS	220g x 0.1 mg	<b>10753-568</b>	<b>5940.90</b>
MS303TS	320g x 1 mg	<b>10753-558</b>	<b>3337.24</b>
MS1602TS	1620g x 0.01 g	<b>10753-698</b>	<b>3016.94</b>
MS3002TS	3200g x 0.01 g	<b>10753-700</b>	<b>3533.54</b>

\*Additional models available on [us.vwr.com](http://us.vwr.com)

**METTLER TOLEDO**

**\$200**

Receive a Cash Rebate  
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## Tips and Tricks for Weighing

# METTLER TOLEDO

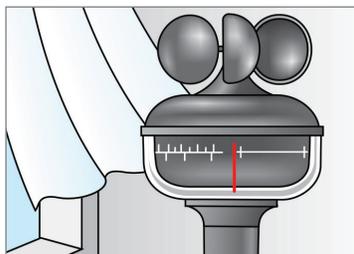
Weighing is one step in the whole process or analysis chain, however, it can strongly influence the quality of the final product. Accurate weighing is essential to ensure continuous adherence to process requirements. In addition to a high-quality balance, weighing accuracy is also dependent on the surroundings and the interaction of the user. The impact of these influences can be dramatically decreased with proper knowledge. METTLER TOLEDO, the industry leader in weighing, has assembled a set of tips and tricks to help you minimize these influences and achieve better weighing results.

### Tip 1

#### Vibrations

##### Avoid Vibrations and Drafts

Ideally, the balance room should be situated in the most vibration-free area of the building, and accessed through a sliding door. Locate the balance away from doors and areas of high traffic to avoid drafts. Do not weigh near windows or near radiators, which can cause strong currents of air that may interfere with the balance. Avoid placing the balance in the air flow of air conditioning units or devices with fans, such as computers.

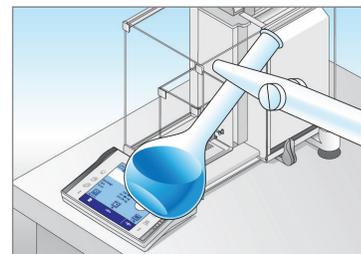


### Tip 4

#### Body Heat

##### Protect Balance from Body Heat

Heat radiating from an operator's body may have an adverse effect on weighing measurements. Where possible, avoid using the hands to place the weighing vessel in the weighing chamber, as this can alter temperature and atmospheric humidity. Wear a lab coat to reduce the effect of the body's surface temperature.



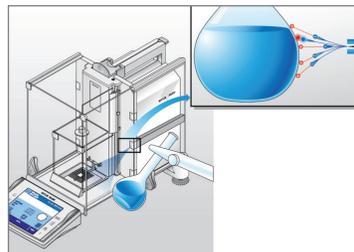
### Tip 2

#### Electrostatic Charge

##### Electrostatic Charge

##### from the Weighing Vessel

Weighing vessels and samples may become electrostatically charged, particularly in dry air. Metal is the best material for weighing vessels, and glass is preferable to plastic as it is less susceptible to electrostatic charge. Reduce weighing errors by increasing atmospheric moisture and using antistatic kits.



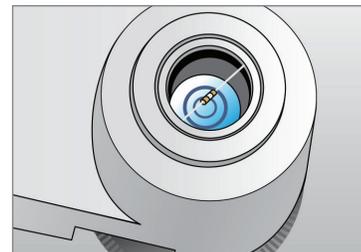
### Tip 5

#### Leveling

##### Leveling your Balance

Align the balance: To do this, check that the air bubble is in the center of the level indicator. Use the leveling feet to make adjustments. You must then adjust the sensitivity of the balance. The exact procedure is described in the operating instructions for the balance.

**TIP:** To ensure and document that the balance is correctly leveled every time for example, to comply with GLP and GMP we recommend the Excellence Plus family of balances with the built-in automatic warning function "LevelControl".

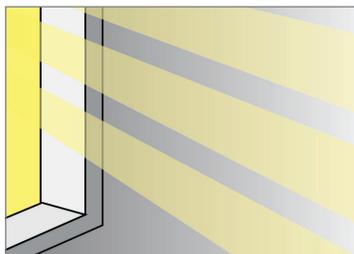


### Tip 3

#### Light and Humidity

##### Influences of Light, Temperature and Humidity

Weighing results are influenced by temperature. Locate the balance on a window free wall, away from direct sunlight (heat) and from heat radiating light fixtures, such as light bulbs. Keep the temperature of the room as constant as possible. The relative humidity (RH) should be between 45 and 60%. Never operate the balance outside the specified range of 20 to 80 % RH. Temperature gradients between the weighing sample and the surrounding environment can lead to air currents along the weighing vessel. Air flowing along the side of the vessel generates an upward or downward force that affects the weighing result, impacting on reproducibility and accuracy. Always acclimatize samples to the temperature of the laboratory or weighing chamber.

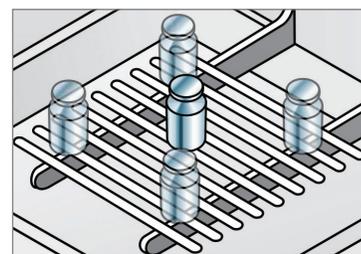


### Tip 6

#### Eccentricity

##### Avoid Corner Load Errors – Eccentricity

Always place the weighing sample in the middle of the weighing pan. This will prevent corner load errors. With micro and semi-micro balances, the weighing pan should first be loaded once briefly after a relatively long pause (>30 min) to deactivate the "initial weighing effect".



For more information visit [vwr.com](http://vwr.com)

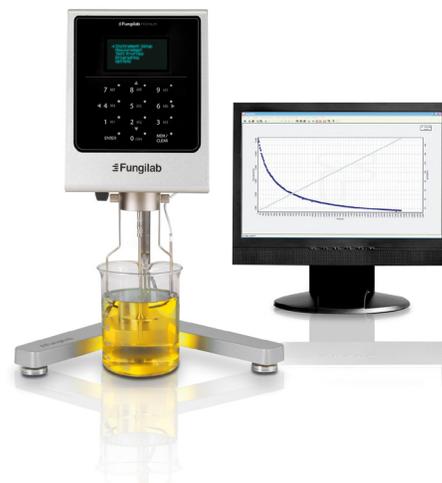
## Fungilab Digital Rotational Viscometer PREMIUM Series



Premium Series is the highest performance digital rotational viscometer for viscosity readings. When monitored by Fungilab Data Boss software, viscometers offer a wide and unique range of rheological applications.

Main features include: Graphic display for easy menu access and results reading and to obtain the graphic flow curve behavior of the sample at real time. Includes: 12 key touch keypad; relative, absolute and kinematic viscosity reading automatically, unit convert SI to CGS; Autotest and Autorange functions; 10 working memories and programming features as step multistep and ramp, time to torque and time to stop; temperature reading PT100; Interface: USB connection; 10 language options. Datalogger software included for downloading data to computer to work in Excel® file (with USB connector).

Fungilab Data Boss Software for rheological studies and control unit through the PC is optional. The Fungilab Data Boss software provides instantaneous viscosity flows curves. Up to four data sets may be plotted simultaneously. Math modeling for yield stress calculations (Bingham Plastic, Casson, Power Law, IPC Paste analysis). More than 12 viscosity plots can be configured. Offers very easy graphic presentation of data and stores the data in a Microsoft Access database.



Measurement Range	Cat. No.	Each
200 to 106.000.000 cP.	89237-120	5210.23

## VWR® Glass Tube Flow Meters, GR Series



Borosilicate glass tube flowmeters in 65mm (2<sup>9</sup>/<sub>16</sub>" ) scale lengths feature a rotary magnification lens and flow curves that permit multiple fluid and gas use with a single tube. Glass tube allows compatibility with most gases and fluids.

Flow meters include 1/8" FNTP aluminum fittings and standard inlet valve. Aluminum fittings include Buna-N seals.

Air Flowrate	Float Material	Water Flowrate	Cat. No.	Each
0.24–75.8 CCM	Sapphire	—	97005-094	184.17
0.405–49.9 CCM	Black Glass	—	97005-092	184.17
1.87–278 CCM	Carboloy	—	97005-096	184.17
238–11,500 CCM	Stainless Steel	4.16–336 CCM	97005-108	184.17
3.34–311 CCM	Tantalum	—	97005-098	205.90
3070–65,800 CCM	Tantalum	80–2058 CCM	97005-116	219.26
47.8–857 CCM	Stainless Steel	—	97005-102	184.17
63–1804 CCM	Stainless Steel	1.06–50.2 CCM	97005-104	184.17



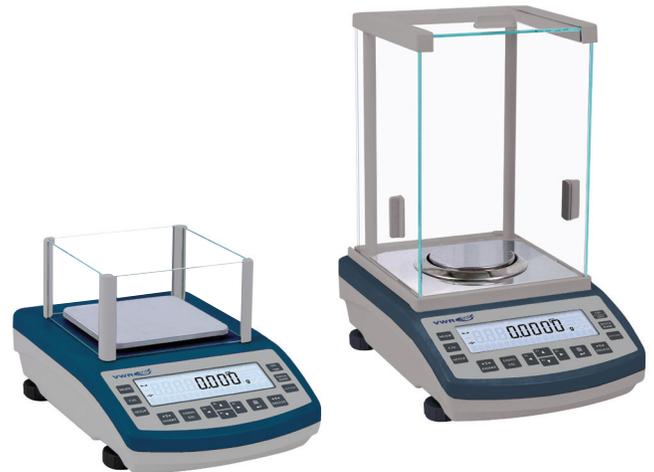
## VWR® A-Series Balances



VWR A-Series Balances provide repeatable and precise weighing with advanced technological features.

- State-of-the-art features for advanced weighing and documentation
- Internal calibration (automatic, time- or temperature-activated)
- Multiple weigh modes
- Advanced communication features

In addition to forced-compensation weighing technology, VWR A-Series balances incorporate state-of-the-art features for advanced weighing applications and documentation. These economical balances offer a variety of standard features, such as internal calibration, menu-driven operation, multiple weigh modes, advanced communication features, and varied application modes.



Specifications	
Interfaces	RS232 (2), USB-A, and USB-B
Operating Temperature	10 to 40°C (50 to 104°F)
Power Requirements	Input: 100–240VAC, 50/60Hz, 0.6A

Capacity	Readability	Repeatability (Std. Dev.)	Pan Size	Cat. No.	Each
60/220 g	0.01/0.1 mg	0.03/0.1 mg	85 mm (3.35 in)	10205-026	4963.00
160 g	0.1 mg	0.1 mg	85 mm (3.35 in)	10204-960	2070.49
220 g	0.1 mg	0.1 mg	85 mm (3.35 in)	10204-962	2367.49
310 g	0.1 mg	0.1 mg	85 mm (3.35 in)	10204-964	2590.60
360 g	0.001 g	0.001 g	128 x 128 mm (5.04 x 5.04 in)	10204-966	1731.58
4500 g	0.01 g	0.01 g	195 x 195 mm (7.68 x 7.68 in)	10204-968	1784.73
6000 g	0.01 g	0.01 g	195 x 195 mm (7.68 x 7.68 in)	10204-970	1990.00



## VWR® B-Series Balances

VWR B-Series Balances combine advanced weighing with intuitive operation.

- Reliable results
- Multiple weigh modes
- Worry-free five-year warranty
- Forced compensation weighing technology

VWR B-Series balances incorporate state-of-the-art features for advanced weighing applications. These economical balances have die-cast aluminum housing, stainless steel weigh pans and draft chamber floors that withstand the rigors of harsh environments.



Capacity	Readability	Repeatability (Std. Dev.)	Pan Size	Cat. No.	Each
60 g	0.1 mg	0.1 mg	90 mm (3.5 in)	10204-972	1625.45
120 g	0.1 mg	0.1 mg	90 mm (3.5 in)	10204-974	1845.60
210 g	0.1 mg	0.1 mg	90 mm (3.5 in)	10204-976	2265.00
200 g	0.001 g	0.001 g	90 mm (3.5 in)	10204-978	1249.00
400 g	0.001 g	0.001 g	90 mm (3.5 in)	10205-028	1548.00
500 g	0.001 g	0.001 g	90 mm (3.5 in)	10205-030	1795.00
4000 g	0.01 g	0.01 g	160 mm (6.3 in)	10205-032	1422.00
5000 g	0.01 g	0.01 g	160 mm (6.3 in)	10205-034	1685.22

# 4 Things to Consider Before Choosing a Ductless Fume Hood

By Diane Williamson, Senior Application Specialist, Labconco

Ductless fume hoods, also known as carbon-filtered enclosures, are self-contained, filtered laboratory enclosures that remove the hazardous fumes, vapors and particles from the laboratory. Unlike traditional fume hoods, installation costs are very low and no ductwork is required. Therefore, many people think it is a slam dunk when they first learn of them.

"It takes care of the chemical fumes, it's cheaper, and it's an easier installation. It only makes sense, right?" Not so fast!

There are some important things to consider before making the final decision to purchase a ductless fume hood. Take these 4 aspects into thorough consideration to be confident that a ductless fume hood is the right choice for your laboratory and your facility overall:

## 1. Is your general application appropriate for a ductless fume hood?

Ductless fume hoods should only be used as light duty and process specific fume hoods. This means that:

- A limited number of different chemicals should be used, no more than about 10 different chemicals per application at most.
- No extreme heating should be carried out in the hood, i.e. acid digestion applications.
- Modest volumes should be used, ~500 mls per chemical or less.
- Moderate chemical exposure times should be maintained, ~2-3 hours a day.

If your application does not meet these parameters, a standard ducted fume hood or a filtered fume hood are likely the best option for maximum safety and economical feasibility. Filtered fume

hoods are the "big brother" of ductless fume hoods; these laboratory hoods utilize advanced chemical filtration and detection for an increased level of safety to rival standard ducted hoods.

At this point you should discuss your application with a Fume Hood Specialist to confirm which kind of fume hood is the primary recommendation.

## 2. Will the chemicals involved in your application be effectively filtered with the available carbon filters?

Typically, ductless hoods will be outfitted with chemical-specific filters. Specific filter types increase chemical trapping capacity for different chemical families; however, some chemicals cannot be safely filtered or aren't filtered effectively enough to allow ductless hoods to be a financially viable option.

Labconco offers seven different types of filters for various chemical groups:

- HEPA (High Efficiency Particulate Air) Filter-99.99% efficient particulate filter for chemical powders and particulates
- Organic Filter-Activated carbon to chemically adsorb organic vapors
- Acid-Sulfur Filter-Impregnated carbon to neutralize acids and sulfur-containing compounds
- Ammonia-Amine Filter-Impregnated Carbon to neutralize ammonia/amine compounds
- Formaldehyde Filter-Impregnated Carbon to neutralize formaldehyde
- Mixed Bed Carbon Filter-60% Impregnated Carbon to neutralize acids and sulfur-containing compounds (20%), ammonia and amine compounds (20%), Formaldehyde containing compounds (20%) and 40% activated carbon for organics
- Radioisotope Filter-Impregnated carbon to neutralize radioisotopes



If all of the chemicals involved in your application match one of these filter types, it is a good sign that your application will be suitable for use with a ductless fume hood; however, there are some chemical exceptions with each filter type. For instance, some organics (such as methanol) are very volatile and light weight, and are not effectively adsorbed on the organic filter. In addition, some acids (like perchloric acid) present special hazards and should be used in a specialized fume hood.

So the best way to determine if your chemicals are compatible with the filter types offered is to request a chemical assessment from our Chemical Specialists. They will review your application to help you determine if it is suitable, make appropriate equipment and filter recommendations, and provide you with any necessary precautions.

## 3. How often will you have to replace your filters?

Although you will not have the added cost of ductwork installation and wiring associated with a standard fume hood, you will still want to consider how often you would need to replace your filters to calculate your estimated annual filter costs. You can then weigh that against the cost to install a standard fume hood. Also consider the energy cost of running a standard fume hood, which removes expensive tempered air from the laboratory, taxing the HVAC system.

Filter life and thus filter replacement times depend on several factors:

- What chemicals are being used, and filter capacity
- The evaporation rate of each chemical
- The chemical volume that is being used
- The duration of usage per day for each chemical
- The temperature of each chemical

#### 4. How do the pros and cons of using a ductless fume hood balance out for you?

If you have gotten to this point and have determined that a ductless fume

PROS:	CONS:
Mobile	Noise can be a factor with internal blower
Easy installation	Filter maintenance is required
Energy savings	Limited applications with limited filter options
Cheaper installation	Greater risk of chemical exposure upon filter loading

hood is suitable for your application, the last thing to do is to determine how the benefits of a ductless fume hood stand up against its disadvantages, and how do both align with your overall company's goals? The final decision is up to you and your safety officer.

When considering whether to purchase a Ductless Fume Hood, these four important considerations will help you to make the safest, most economical decision for your facility.

## VWR® symphony™ Flammable Storage Refrigerator and Freezer

To facilitate the storage of flammable materials, sources of sparks and ignition – such as lights, thermostats, switches and fans – have been removed from the interior of these units. All units have exterior adjustable mechanical thermostats. The exteriors feature a white baked-on powder coat finish, and single solid doors with keyed locks.

Refrigerators and freezers are supplied with a two-year parts and labor warranty, with an additional three-year warranty on compressor parts.

- Exterior adjustable mechanical thermostats
- White baked-on powder coat exterior
- Single solid door, with keyed locks

Units meet NFPA and OSHA guidelines, and are UL and C-UL listed.



Electrical	Volume	Exterior Dimensions	Door Type	No. of Shelves	Temperature Range	Cat. No.	Each
<b>Refrigerator</b>							
115V, 4A	566 L (20 cu. ft.)	86.4W x 90.8D x 186H cm (34 x 35 3/4 x 73 1/4")	Single Solid Door with 5 Bins	1 Adjustable, 3 Fixed	0 to 10°C (32 to 50°F)	97055-748	4689.43
<b>Freezer</b>							
115V, 4A	566 L (20 cu. ft.)	86.4W x 90.8D x 186H cm (34 x 35 3/4 x 73 1/4")	Single Solid Door with 5 Bins	4 Fixed	-18 to -25°C (-0.4 to -13°F)	97055-746	4069.87

## VWR® Traceable® High-Accuracy Refrigerator Thermometers



Perfect for monitoring freezers, heating blocks, incubators, refrigerators, and water baths. Display case is made of high-impact, chemical-resistant ABS plastic. Display simultaneously shows maximum, minimum, and current probe temperatures, as well as room temperature. Alarm feature provides continuous visual and audio alerts when temperature rises above or falls below a programmable set point, even if temperature returns to non-alarm range. Dual probe thermometers provide individual readings and alerts for each probe. Sensor and 3m (10') micro-cable continue to perform accurately when submerged in water. Micro-cable permits refrigerator doors to close on it without affecting the seal. Thermometers feature one-button self-calibration.

- Traceable
- Temperature in °C and °F
- Each sensor probe is sealed in a bottle filled with GRAS nontoxic glycol

Description	Range	Accuracy	Cat. No.	Each
Calibrated Thermometer with NIST Traceable Certificate and Two Bottle Probes	-58.00 to 158.00°F (-50.00 to 70.00°C)	±0.30°C	89094-748	115.13



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- Dedicated water specialists to design the right solution for your needs
- Service and support solutions delivered locally
- Cost reliable water systems with low running costs
- Thousands of systems successfully installed globally

Qualifying System, All Models are available*	Make Up Flow Rate	Cat. No.	Each	Free Purification Pack Cat. No.
PURELAB® Option S	7.5 L/hr.	89203-984	4855.77	89204-308
PURELAB Option R	7.5 L/hr.	89204-000	6400.77	89204-308
PURELAB Option Q	7.5 L/hr.	89204-016	8335.96	89204-348
PURELAB Pulse	10 L/hr.	89204-040	10346.74	89221-822
PURELAB Ultra	2 L/min.	89204-052	9921.36	89204-368, 89204-370, 89204-372, or 89204-374
PURELAB Classic	2 L/min.	89204-072	6495.21	89204-376
PURELAB flex*	2 L/min.	89221-842	7729.07	89204-392, 89204-404
PURELAB Chorus	2 L/min.	10034-544	9806.36	10035-890, 10035-894

+ Visit [vwr.com](http://vwr.com) and search by the catalog number listed to find additional model configurations and flow rates/options for each.

\*Intuitive to use with ergonomic handset design.

For more information and a complete list of qualifying products, visit [vwr.com/promotions](http://vwr.com/promotions) and search promo code 4290.

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## VWR® Verification Thermometers



To verify sample temperatures in freezers, refrigerators, incubators, or ovens with traceability to NIST. Each item features individual serial numbers and a Statement of Accuracy indicating accuracy traceable to NIST. Organic liquid.

Tested and calibrated in an exclusive triple accredited/registered ISO/IEC 17025:2005, A2LA accredited laboratory against equipment whose calibration is traceable to NIST and DKD/PTB.



Range	Length	Accuracy	Divisions	Cat. No.	Each	Case of 25
-5 to 15°C	125 mm	0.75°C	0.5	89095-676	41.03	1026.00

## ACCREDITED PIPETTE CALIBRATION

VWRCATALYST offers calibration and repair services for all makes, models, and configurations of pipettes, as well as bottle-top dispensers, pipet aids, repeaters, diluters, and syringes.

You can select from six levels of service, which are performed on-site or through our mail-in program. Our levels of service range from basic preventive maintenance and accuracy checks, to ISO 17025-accredited calibrations, to customized solutions.



To order services for your instrument or to request a quote, contact us at 1.888.793.2300 or [vwrcatalyst@vwr.com](mailto:vwrcatalyst@vwr.com).

## Quality, Convenience, and Dedicated Support

**VWRCATALYST** offers calibration, qualification, preventive maintenance, certification, temperature mapping, and warranty management services for all equipment and instruments.

Our team specializes in providing a quick and targeted response to your needs. We also offer consultative and customized solutions. This enables you to:

- Improve efficiency by keeping your equipment in compliance
- Optimize your budget and maximize your equipment investment

With our network of ISO 9001 / IEC17025 accredited service providers, **VWRCATALYST** can be your single point of contact for all equipment and instrument service needs.

## Our service offering is focused on helping you in the following areas:

**Calibration-VWRCATALYST** can maintain required accuracy of your equipment through periodic calibration. We can customize a solution that meets your specific needs, from basic accuracy checks to ISO/IEC 17025 accredited calibrations.

**Qualification**-Our IQ, OQ, and PQ qualification services help you stay in compliance with FDA, GMP/GLP, United States Pharmacopoeia, and ISO standards. **VWRCATALYST** can ensure your equipment and instruments are qualified per manufacturer specifications. Qualification tests are performed by one of our independent, accredited service professionals, and our qualification protocols are set at your level of compliance. Additionally, we customize our IQ/OQ/PQ protocols to meet your compliance needs.

**Preventive Maintenance**-Our customized preventive maintenance program prevents equipment failures and downtime, and our services can maximize the life and performance of your equipment and computerized instruments.

**Certification-VWRCATALYST** ensures compliance and safety through our cleanroom, critical environment, and equipment testing (including biosafety cabinets, fume hoods, and laminar flow units), cleaning, and certification services.

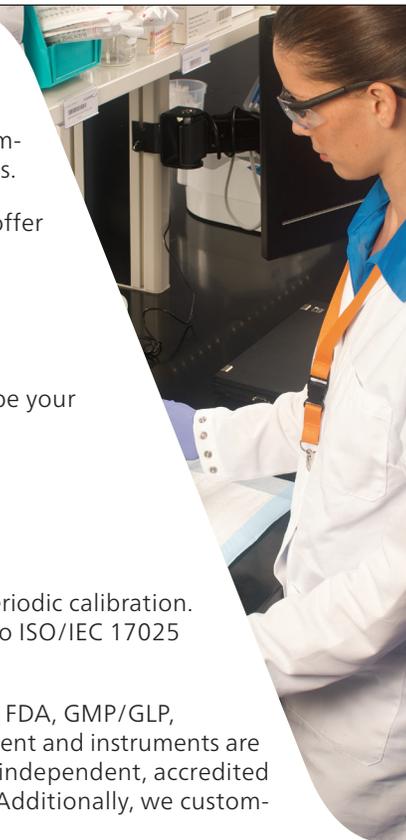
**Temperature Mapping**-Temperature mapping is a service dedicated to all temperature controlled devices and storage environments that need to comply with FDA and cGMP regulations. **VWRCATALYST** provides a service suitable to all temperature controlled environments and devices.

**Warranty Management**-We offer a wide range of laboratory equipment and instruments with full manufacturer warranty. We can also assist you in coordinating your warranty services and after-sale service contracts.

**VWRCATALYST** provides a network of recognized, highly qualified service providers that ensure compliance with all pertinent FDA, GLP/cGMP, ISO, NCCLS, CAP, CLIA, and 21 CFR requirements.

Our network of recognized, pre-qualified service providers can help you maintain virtually any type of equipment, at your location or through one of our depot service centers.

Contact us today at [catalyst\\_support@vwr.com](mailto:catalyst_support@vwr.com) or **1.888.793.2300**



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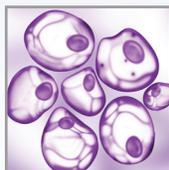
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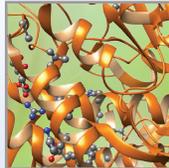
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