



environmental  
express®

an antylia scientific company

# Metals Digestion & Sample Preparation

Designed so you can perform metals digestion rapidly & safely, with accuracy & uniformity



Industrial • Oil & Gas • Chemical & Mining • Environmental • Food & Agriculture



# Metals Digestion & Sample Preparation

Our Environmental Express® range is designed so that you can perform metals digestion rapidly and safely, with accuracy and uniformity. We offer you a product for every step of the sample preparation process from sampling and digestion, right the way through to filtration. There is also the option to create OEM HotBlocks to suit your workflow.



## The HotBlock® Digestion Systems

Perform faster, cleaner and more reliable digestion

The Digestion Systems have a metal-free construction, fire resistant Kydex® housing and PTFE-coated graphite block to limit contamination. Each unit has integrated electronics and a silicone heating mat for uniformity of heating. The systems can be stored easily via a wall or bench mounting.

### The HotBlock® 100 Series Digestion Systems

- Uniformly heat ( $\pm 1.5^{\circ}\text{C}$  sample consistency)
- Block heat to an ambient temperature of up to  $150^{\circ}\text{C}$  ( $\pm 0.1^{\circ}\text{C}$ )

### The HotBlock® 200 Series Digestion Systems

- Block heat to an ambient temperature of up to  $200^{\circ}\text{C}$  ( $\pm 0.2^{\circ}\text{C}$ , resolution  $0.1^{\circ}\text{C}$ )
- Externally control one block (SC1831) or two blocks simultaneously (SC1832)

#### Included:

- Polycarbonate transfer rack

#### Compatible with:

- 15 mL, 50 mL, and 100 mL cups
- AutoBlock® Fill
- StirBase™

#### The HotBlock 100 series

Catalogue ref.	Sample (no.)	Sample vol. (mL)	Size (W x L; mm)	Weight (kg)	240 VAC Amps
C6002-240	12	50	216 x 470	25.4	4.5
SC100-240	36	50	381 x 381	26.3	4.5
SC154-240	54	50	381 x 546	29.5	4.5
SC150-240	25	100	381 x 381	19.1	4.5
SC151-240	35	100	381 x 546	26.8	4.5
SC196-240	96	15	381 x 546	37.7	4.5

#### The HotBlock 200 series

Catalogue ref.	Sample (no.)	Sample vol. (mL)	Size (W x L; mm)	Weight (kg)	240 VAC Amps
SC2050-36V240	36	50	381 x 381	24.5	6.5
SC2050-54V240	54	50	381 x 546	35.4	6.5
SC2100-25V240	25	100	381 x 381	24.5	6.5
SC2100-35V240	35	100	381 x 546	32.2	6.5
SC2015-96V240	96	15	381 x 546	37.7	6.5



HotBlock 200 digestion system - uniformly heats all samples up to  $200^{\circ}\text{C}$





## The StirBase™ Magnetic Stirrer

Turn your existing HotBlock® into a stirring HotBlock or use as a stand-alone stirrer with this durable unit

- Perform determinations of hexavalent chromium in soils, pharmaceutical dissolutions, and more
- Control the speed safely and at a distance with a remote (0 to 2150 rpm, in 100 different ranges)

### Included:

- Remote control (1.8 m cord)
- 60 custom-made stir bars

### Compatible with:

- The HotBlock® 100 Series
- The HotBlock® 200 Series

Catalogue ref.	Speed (rpm)	Size (W x D; mm)	Power (VAC)
SC160-240	0 - 2150	559 x 406	240 VAC



HotBlock sitting on top of the StirBase



## The AutoBlock® Fill Filling Station

Partner this system with a HotBlock® of your choice to undertake safe and cost-effective reagent additions

- Dispenses from up to five different reagents
- Switch between methods and reagents easily with the five-way valve system
- Programme the unit to calibrate and dispense the required volume of reagent
- Control via an onboard touch-screen or included software
- Cost-effective alternative to fully automated system

### Included:

- Masterflex® peristaltic pump (2% vol. accuracy)
- PTFE tubing
- Five 1 L glass reagent bottles
- Waste container

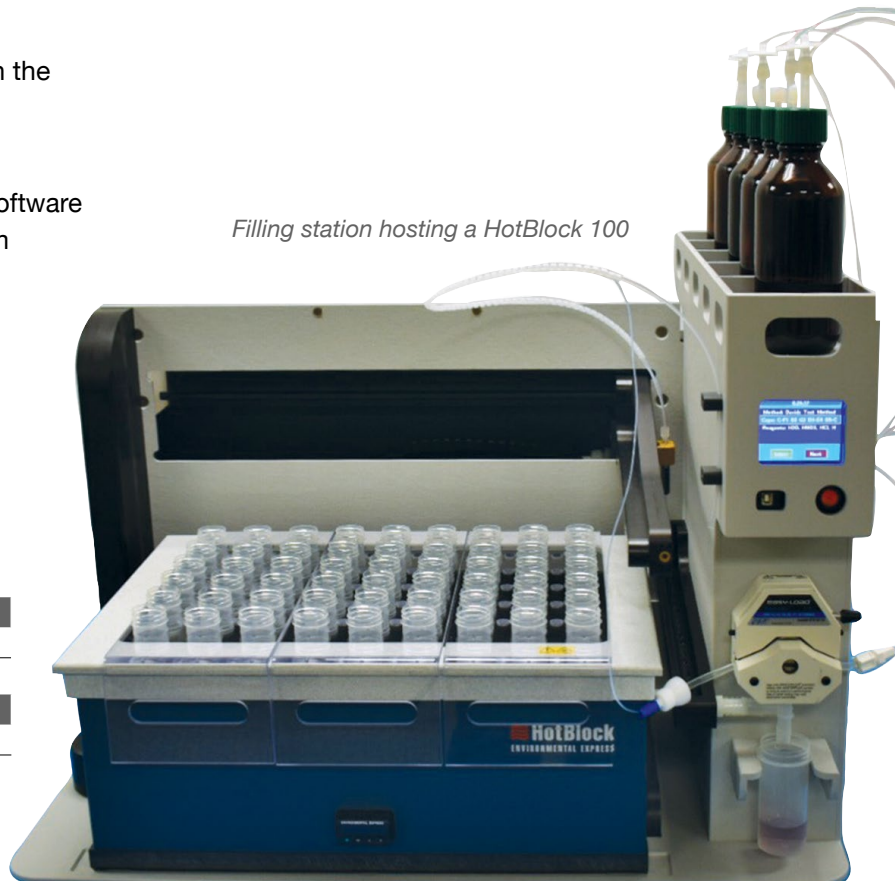
### Compatible with:

- The HotBlock® 100 Series
- The HotBlock® 200 Series

Catalogue ref.	Sample capacity	Nominal sample size
ABF5000	12 to 96 wells	15 to 100 mL

Operating temperature of block	Size (W x L x D; mm)	Weight (kg)
Ambient to 300°C	787 x 686 x 559	20.4

Filling station hosting a HotBlock 100



## The AutoBlock® Plus Digestion System

Automate and monitor the simultaneous digestions

- Safely run a custom method and record all digestion procedures and data, at a distance, with user-friendly software on a PC or laptop
- Determine batch size and automate reagent addition for up to 54 samples with a single X, Y, Z injection probe. The AutoBlock has eight reagent and two deionised (DI) water ports and is ideal for the economical use of reagents
- Achieve a final volume, with DI water, by using the final fill-to-volume function
- Detect leaks and monitor pressure and maximise your safety

### Included:

- 10 L waste carboy
- Two reagent rack kits (six-place rack, five reagent caps, five lengths of 3 mm PTFE tubing)

### Compatible with:

- Existing fume hood

Catalogue ref.	Description
AB4001-240	AutoBlock Plus digestion system, 240 VAC
ABP110	Replacement reagent rack kit
ABP149	Replacement 10-L carboy assembly with cap and tubing

Sample capacity: 54  
 Sample cup size: 50 mL  
 Number of reagents: 8  
 Footprint (mm): 914 x 978 x 610  
 Clearance: 52 mm all sides  
 Weight: 113 kg (136 kg packaged)  
 Temperature: ambient to 150°C

Communication: USB  
 Computer requirements: Windows® 7 operating system; Intel Core: i3-2330M processor @ 2.20 GHz or better; 4 GB of DDR3 SDRAM memory  
 Computer is not supplied



**Digest 54 samples simultaneously all the way through to the final fill-to volume step**

*AutoBlock with PC setup and close up of the X, Y, Z Injection Probe*



CP  
**68**  
elements

**Certified  
for 68  
Elements**

	UltimateCup	Ultimate Clean
Ag	<0.5	<0.1
Al	<50	<50
As	<2	<0.2
Au	<1	<0.25
B	<15	<15
Ba	<2	<1
Be	<0.1	<0.1
Bi	<0.5	<0.1
Ca	<300	<200
Cd	<0.5	<0.2
Ce	<0.5	<0.2
Co	<0.5	<0.1
Cr	<5	<1.5
Cs	<0.5	<0.1
Cu	<1	<0.5
Dy	<0.5	<0.1
Er	<0.5	<0.25
Eu	<0.5	<0.1
Fe	<100	<25
Ga	<1	<1
Gd	<0.5	<0.1
Ge	<0.5	<0.1
Hf	<0.5	<0.1
Hg	<0.0005	<0.0005
Ho	<0.5	<0.1
In	<0.5	<0.1
Ir	<0.5	<0.1
K	<300	<50
La	<0.5	<0.1
Li	<1	<0.5
Lu	<0.5	<0.1
Mg	<30	<30
Mn	<5	<0.5
Mo	<0.5	<0.1
Na	<250	<50
Nb	<0.5	<0.1
Nd	<0.5	<0.25
Ni	<2	<0.25
Os	<0.5	<0.1
P	<50	<10
Pb	<2	<0.25
Pd	<0.5	<0.1
Pr	<0.5	<0.1
Pt	<2	<0.5
Rb	<0.5	<0.1
Re	<0.5	<0.1
Rh	<0.5	<0.1
Ru	<0.5	<0.1
Sb	<1	<0.5
Sc	<0.5	<0.2
Se	<2	<0.25
St	<100	<50
Sm	<0.5	<0.25
Sn	<5	<1
Sr	<5	<2.5
Ta	<0.5	<0.1
Tb	<0.5	<0.1
Te	<1	<0.5
Ti	<5	<0.5
Tl	<0.1	<0.1
Tm	<0.5	<0.1
U	<0.1	<0.1
V	<5	<0.5
W	<0.5	<0.1
Y	<0.5	<0.1
Yb	<0.5	<0.1
Zn	<7.5	<2
Zr	<2	<1
Lot no. 1802043	Lot no. 17009027	

## Digestion cups

'One-Cup Solution' - chemical resistant digestion cups.  
Eliminate contamination, save time, labour & costs

### UltimateCup™

- Bring a sample to volume, cap it, and store it
  - Durable clarified homopolymer polypropylene
  - No vent lines so it's easier to read
  - Certified volume accuracy ( $\pm 0.5\%$ ) at all graduation lines
  - Available in 15-, 50-, 100-, and 250-mL
  - Screw thread design for a tight seal
  - Outer diameter fits your digestion block
  - Deep dimple in base gives stability



### UltimateCup™ Rack Lok Cup

- Ergonomically handle digestion cups
  - Cups lock in place in racks so you can open them with one hand

### Ultimate Clean™ Cup

- Digest trace metals (ppb and ppt) in any clean environment
  - 50 mL cup is made from clarified homopolymer propylene - The moment each cup comes off the mould, it is carefully capped and handled to avoid common means of contamination
  - All cups arrive ready to use

Trust your  
measurements, with  
these reliable and durable  
'One cup' solutions!

Catalogue ref.	Description	Capacity (mL)	Graduations (mL)	Size (mm)	Qty/pk
<b>Ultimate Clean digestion cup</b>					
UCC000-50	50 mL digestion cup	63	Up to 50	30 x 106	150
<b>Ultimate digestion cups</b>					
UC475-NL	50 mL digestion cup	63	Up to 50	30 x 106	500
UC475-GN	50 mL digestion cup	63	Up to 50	30 x 106	500
UC475-WH	50 mL digestion cup	63	Up to 50	30 x 106	500
UC474	50 mL digestion cup	63	Up to 50	30 x 106	500
<b>Ultimate Rack Lok cup</b>					
UC482-NL	50 mL Rack Lok cup	63	Up to 50	30 x 106	500
UC482-WH	50 mL Rack Lok cup	63	Up to 50	30 x 106	500
UC483	50 mL Rack Lok cup	63	Up to 50	30 x 106	500
<b>Other digestion cups</b>					
SC415	15 mL digestion cup	18	Up to 15	17.5 x 105	1000
SC414	15 mL digestion cup	18	Up to 15	17.5 x 105	1000
SC490	100 mL digestion cup	125	Up to 100	46 x 100	225
SC491	100 mL digestion cup	125	Up to 100	46 x 100	225
SC425	250 mL digestion cup	330	Up to 250	76 x 83	180

\*Note: caps are available upon request UC474-NL, UC474-GN, UC474-WH

**Key:** NL - Natural, no liner; WH - White, lined; GN - Green, lined; RD - Red, no liner; PK - Pink, no liner; OR - Orange, no liner, YL - Yellow, no liner.

We now offer coloured, linerless caps.  
Please contact us for further details.



Example of typical special digestion vessels

## Special digestion vessel

- Achieve digestions above 130°C with borosilicate glass, quartz or PFA vessels
- Digest large volumes of concentrated acids for long periods of time (>50%, >6 hrs) in glass or quartz vessels
- When digesting samples for silicon, PFA vessels as the ideal choice

Catalogue ref.	Description	Total capacity (mL)	Size (mm)	Qty/pk
SC440	50 mL Borosilicate glass cup	98	178 x 33	1
SC432	50 mL Disposable glass vial, no cap	48	94 x 29	432
SC442	50 mL Quartz tube, grade GE124	55	102 x 33	1
SC441	50 mL Borosilicate glass cup	55	113 x 33	1
SC545	50 mL PFA cup, with screw cap	62	129 x 30	1
SC600	100 mL polypropylene cup, with hinged snap-cap	130	94 x 46	250
SC601	70 mL polypropylene cup, with hinged snap-cap	80	94 x 36	400
SC640	100 mL PFA cup	125	103 x 42	1
SC546	60 mL PFA vial with threaded closure	64	132 x 29	1
SC641	100 mL Borosilicate glass cup	230	178 x 45	1
SC643	100 mL Borosilicate glass cup	130	102 x 45	1

All digestion cups and vessels are compatible with: AutoBlock® Fill, The HotBlock® 100 Series, The HotBlock® 200 Series.

Accessories include racks, watch glasses, reflux cap, thermometers

## Racks

Prepare, transfer and store samples

### Plastic-Coated Wire Storage Rack

- Transfer up to 18 digestion cups (100 mL) with ease.

### Polycarbonate Transfer Racks

- Transfer safely with this heat and acid resistant rack

### Stackable Foam Storage Rack

- Store up to 25 digestion cups (50 mL)

### Stackable and Durable Polypropylene Storage Rack

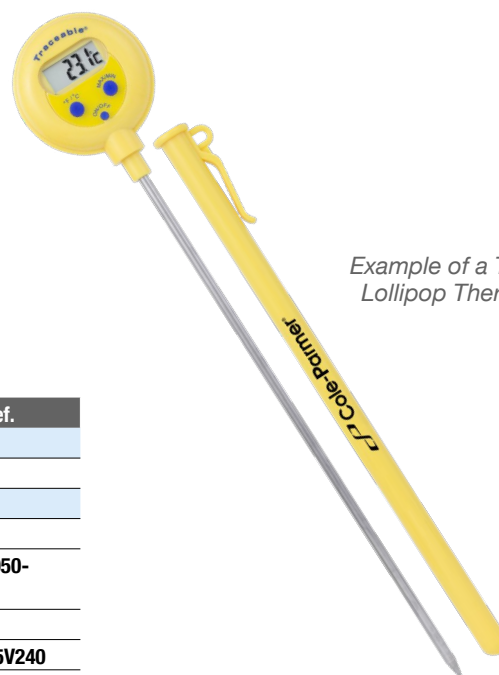
- Store and organise up to 24 digestion cup (30 mm diameter)



## Thermometers

Monitor temperature of individual samples with the Lollipop™ Traceable® Thermometer

- Solid-state construction
- Choose to switch between °F/°C units
- Temperature Range: 58 to 572°F and 50 to 300°C
- Resolution is 0.1° from 20 to 200°; 1° outside this range
- Accuracy is ±1°C between 0 and 100°C



Example of a Traceable Lollipop Thermometer

Catalogue ref.	Description	Digestion cups, HotBlock, & AutoBlock ref.
<b>Plastic-coated wire storage rack</b>		
SC7150	18 place rack (1 no.)	100 mL cups
<b>Polycarbonate transfer rack</b>		
C6050	12 place rack (1 no.)	50 mL cups and C6002-240
SC200	18 place rack (1 no.)	50 mL cups, SC100-240 SC154-240 SC2050-35V240 SC2050-35V240
ABP163	18 place rack (3 no.)	50 mL cups, AB4001
SC225	15 place rack (1 no.) & 10 place rack (1 no.)	100 mL cups, SC150-240, and SC2100-25V240
SC235	15 place rack (1 no.) & 10 place rack (2 no.)	100 mL cups, SC151-240, and SC2100-35V240
SC296	32 place rack (3 no.)	15 mL cups, SC196-240, and SC2015-96V240
<b>Foam storage rack</b>		
SC700	25 place stackable rack (5 no.)	50 mL cups
<b>Polypropylene storage rack</b>		
SC446	24 place rack (1 no.)	Use with any tube up to 30 mm in diameter

Catalogue ref.	Description	Max temp.	Fits cup model
SC980	For 50 mL cups	300°C	UC475
SC981	For 100 mL cups	300°C	SC490
SC985	For 15 mL cups	300°C	SC415

## Ribbed watch glasses

### Achieve partial reflux

- Designed with a central stem for easy placement
- Free of contaminants due to polypropylene construction



Ribbed watch glasses

## Disposable reflux cap

### Smooth reagent addition

- Achieves equal reflux as the ribbed watch glasses.
- Central opening allows you to add reagent easily



Disposable reflux cap

Catalogue ref.	Description	Diameter (mm)	Qty/pk
<b>Ribbed watch glasses</b>			
SC505	For 50 mL digestion cup	44.0	1000
SC610	For 100 mL digestion cup	52.0	500
SC417	For 15 mL digestion cup	19.5	1000
<b>Disposable reflux cap</b>			
SC506	For 50 mL digestion cup	34.0	1000

All accessories are compatible with: UltimateCup™, Ultimate Clean™ Cup, Rack Lok Cup, Speciality Vessels.

## Filtration System

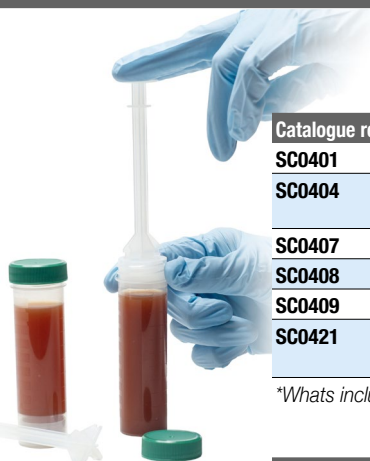


### FilterMate® System

Simple to use—just attach the FilterMate® plunger to the filter assembly, press down on the plunger until the filter reaches the bottom of the cup, and remove the plunger prior to capping and storage or auto-sampling

#### Included:

100 filter assemblies and plungers.



Catalogue ref.	Membrane description	Application	Pore size (µm)
SC0401	PTFE-faced polypropylene	Most laboratory applications	6.0
SC0404	Acid-Washed glass fibre with polyethylene frit	TCLP extractions	0.7
SC0407	PVDF with PTFE prefilter	Dissolved metals only	0.45
SC0408	Certified PTFE	Trace level analysis	6.0
SC0409	PVDF with PTFE prefilter	Dissolved metals only	0.45
SC0421	Polyethylene frit	Use with 15 mL digestion cups (SC415)	2.0

\*Whats included: 100 filter assemblies and plungers.



### FlipMate® Systems

- Simply screw on filtration assembly, add an additional digestion cup, and apply vacuum to filter samples.
- FlipMate® is compatible with a 12-place, chemical resistant, PVC vacuum manifold (SC0620)

#### Included:

**FlipMate® 50 systems** include 200 FlipMate® filtration assemblies, 400 digestion cups (UC475), and 200 caps.

**FlipMate® 100 systems** include 100 FlipMate® filtration assemblies, 200 digestion cups (SC490), and 100 caps.



Complete system Catalogue ref.	Filtration assembly only Catalogue ref.	Membrane description	Pore size (µl)
<b>FlipMate 50 System (Sample size 50 mL, Qty/pk: 100)</b>			
-	SC0608	PES filter with prefilter	0.2
SC0601C	SC0601	PES filter with prefilter	0.45
SC0601CW	-	PES filter with prefilter, white caps	0.45
SC0602C	SC0602	Glass fibre filter	1.5
SC0602CW	-	Glass fibre filter, white caps	1.5
SC0603C	SC0603	PES filter without prefilter	0.45
SC0604C	SC0604	PES filter with PTFE prefilter*	0.45
SC0605C	SC0605	Glass fibre filter with PTFE prefilter*	0.7
SC0605CW	-	White glass fibre filter with PTFE prefilter*	0.7
<b>FlipMate 100 System (Sample size 100 mL, Qty/pk: 50)</b>			
SC0301C	SC0301	PES filter with prefilter	0.45
SC0302C	SC0302	Glass fibre filter	1.5
SC0303C	SC0303	PES filter with prefilter	0.2
SC0304C	SC0304	Acid-washed glass fibre filter without prefilter	0.7
SC0306C	SC0306	Acid-washed glass fibre filter without prefilter	>10
SC0308C	SC0308	PES filter with prefilter*	0.45
SC0305C	SC0305	Sintered polyethylene filter	40-90

\*Certified for trace metals

## Manifold

Filter multiple 50 or 100 mL samples simultaneously.

Simple to use—Multiple manifolds fit together and allow the attached vacuum to be controlled easily with valves.



## GhostWipes®

### Undertake sample preparation with ease

- For surface lead and beryllium dust (ASTM E 1792 and D 7707 compliant).
- Sturdy wiping material that holds together on the roughest surfaces. Premoistened in deionised water and ready for sample collection, all you need to do is just wipe the area that you want to digest.
- Wipes breakdown completely and won't clog your sample uptake capillary or nebuliser. Moreover this results in complete dispersion of analytes and uniform recoveries.

Catalogue ref.	Description	Size (mm)	Qty/pk
SC4200	GhostWipe premoistened wipes Individually wrapped	150 x 150	200
SC4210	GhostWipe premoistened wipes Individually wrapped.	150 x 150	500
SC4250	GhostWipe premoistened wipes Individually wrapped.	150 x 150	1000
SC4280	GhostWipe dry wipes	200 x 250	100

### Accessories

Catalogue ref.	Description	Qty/pk
C1010	Dust sampling template, isolates a 100 x 100 mm testing area	250
C1012	Dust sampling template, isolates a 300 x 300 mm testing area	100
UC475-NL	UltimateCup™ digestion cup, 50 mL, linerless cap.	500

## Lead-Based Paint Standard

### Verify results

- Ground and sieved for homogeneity.
- Each lot is digested and certified against NIST traceable standards with both total and EPA 3050B values reported.

Catalogue ref.	Description	Qty/grams
HP-CRM-PC-A	Lead-based paint chips, 0.1% Pb	40

## Lead Wipe Standard in Cup

### Make certain of your accuracy

- GhostWipe® wipe spiked with in-situ dust.
- Wipes are pre-loaded with known quantities of lead from 175 to 250 mg. Sample ID and Certificate of Analysis included.

Catalogue ref.	Description	Qty
SC4252	Lead wipe standard in 50-mL cup	10
SC4256	Lead wipe standard in 100-mL cup	10

Ghost wipe kit components



Standards continue to be a large part of our business and we are proud to offer a wide variety for the metals lab. Whether it is a single-element standard, one of our multi-element standards, or a custom standard for your laboratory, we can help.

## ICP Replacement Parts

Replacement parts for your ICP, ICP-MS, Graphite Furnace, and Flame AA are also available from Environmental Express. Some of the products we offer are sampler and skimmer cones, electron multipliers, spray chambers, nebulisers, torches, pump tubing, graphite tubes, and matrix modifiers. Contact us with your instrument make and model for a quotation.



Agilent



Cole-Parmer is a leading global source of Fluid Handling, Test & Measurement and Biosciences products, instrumentation, equipment and supplies. We are proven experts in the fields of temperature measurement, spectroscopy, fluid handling, sample preparation & handling and chromatography. Our portfolio of unique industry-leading brands includes Argos Technologies®, Digi-Sense®, Electrothermal®, Environmental Express®, Ismatec®, Jenway®, Kinesis®, Masterflex®, Oakton®, PCRmax®, Stuart®, Techne®, TELOS®, Traceable®, Vaplock™ and a wide range of private-label products.

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