VWR®
We Enable Science

VWR® FOR PCR

Microvolume spectrophotometers

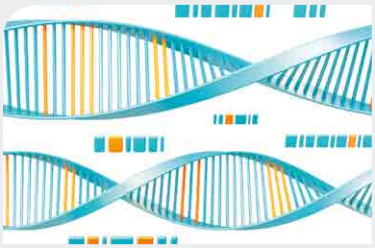
PCR reagents, clean-up kits and heat labile enzymes

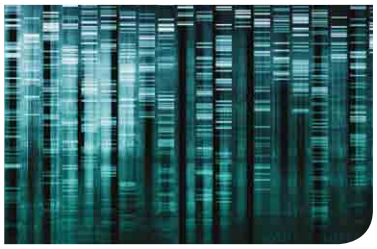
PCR consumables

PCR workstation

PCR cyclers and thermal shakers

Performance, reproducibility and value





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THESE SYMBOLS INDICATE IMPORTANT PRODUCT FEATURES:

Autoclavable

USB interface

Sustainable

Ethernet interface

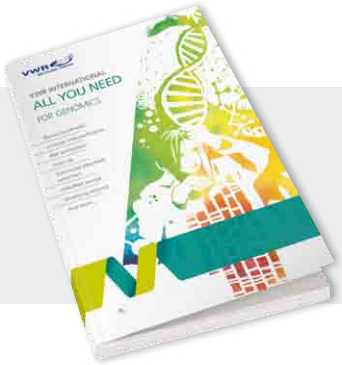
2 year warranty

Warranty

SYMBOLS

We hope you've enjoyed this selection of our total range for Genomic solutions. There is a whole lot more to explore...

Request our catalogue «All You Need» for Genomics from your local VWR sales office or go to vwr.com.



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mySPEC Touch

Microvolume spectrophotometers, mySPEC

For microvolume concentration and purity measurements

The versatile mySPEC range of spectrophotometers allows the user to perform measurements on nucleic acids and proteins contained in a very small sample volume. The ‚mySPEC Twin' models have an additional port for a cuvette so that cell density or enzymatic activity measurements can be performed. Preconfigured modules allow for rapid, fully automated data analysis for a wide variety of applications including, concentration and purity of RNA and DNA; protein measurements (A280, Bradford, Lowry, BCA, Pierce 660); determination of labelling efficiencies; colorimetric assays on enzymatic activities and cell density measurements.

- Requires just 1 µl sample
- Quick and simple to use - no cuvettes required – just pipette, measure (<5 seconds) then wipe
- Large dynamic range from 2 ng/µl to 15 µg/µl (ds DNA) puts an end to error-prone dilutions and calculations
- 'Twin' versions combining microvolume and cuvette function including temperature control (30...40 °C) and stirrer (0; 50; 1000 min^{-1})
- Stand-alone 8.4'' touch screen versions available
- Automated data analysis after user-defined purity settings

Model	mySPEC	mySPEC Twin	mySPEC Touch	mySPEC Twin Touch
Light source	Xenon flash lamp			
Detector	2048 silicon CCD array			
Wavelength range (nm)	190 - 840			
Wavelength accuracy (nm)	±1			
Wavelength resolution (nm)	<1,8 (FWHM @ Hg 253,7 nm)			
Photometric range	0,02 - 300 (10 mm equivalent Absorption)			
Photometric accuracy	±3% (at 0.76 Abs at 350 nm)			
Photometric reproducibility	0,002			
Concentration units	2 - 15000 ng/µl (dsDNA)	2 - 15000 ng/µl (dsDNA) 0,4 - 750 ng/µl (dsDNA) in cuvettes	2 - 15000 ng/µl (dsDNA)	2 - 15000 ng/µl (dsDNA) 0,4 - 750 ng/µl (dsDNA) in cuvettes
Cuvettes	n/a	up to 10 mm pathlength	n/a	up to 10 mm pathlength
Display	External PC		8,4» touch creen	
Software	Compatible with Windows® XP, Windows® Vista, Windows® 7, Windows® 8		n/a	
Voltage	12 V DC			
Interfaces	USB			
Power consumption	30 W			
W×D×H (mm)	140×250×190		230×310×370	
Weight (kg)	2	2,1	4,3	

mySPEC

Description	Pk	Cat. No.
mySPEC microvolume spectrophotometer with USB cable and software for connection to external PC (not supplied)	1	**732-2533**
mySPEC Twin microvolume spectrophotometer with cuvette capability, supplied with USB cable and software for connection to external PC (not supplied)	1	**732-2535**
mySPEC Touch stand-alone microvolume spectrophotometer	1 SET	**732-2534**
mySPEC Twin Touch, stand-alone microvolume spectrophotometer with cuvette capability	1 SET	**732-2536**

Description	Pk	Cat. No.
Accessories		
Calibration fluid for mySPEC microvolume spectrophotometer	1 Vial	**732-2537**

Taq DNA Polymerase

VWR® Taq DNA Polymerase is an ultra-pure, thermostable, recombinant DNA polymerase, which provides robust PCR performance in a wide range of PCR applications, without time-consuming optimisation. The enzyme is isolated from Thermus aquaticus and has a molecular weight of approximately 94 kDa. VWR® Taq DNA Polymerase has both a 5' - 3' DNA polymerase and a double strand 5' - 3' exonuclease activity. It leaves an A overhang, which makes the enzyme ideal for TA cloning. VWR® Red Taq DNA Polymerase is a blend of Taq DNA polymerase combined with an inert red dye. The dye enables quick visual recognition of reactions to which enzyme has been added, as well as confirmation of complete mixing. A glycerol-free Taq DNA Polymerase is also available for automation and freeze drying.

- Most suitable choice for routine applications
- High performance, thermostable DNA polymerase
- Optimal for TA cloning

Taq DNA polymerase concentration: 5 Units/µl

10X Key Buffer: Tris-HCl pH 8,5, $(NH_4)_2SO_2$, 15 mM $MgCl_2$, 1% Tween-20®

10X Extra Buffer: Tris-HCl pH 8,3, KCl, 15 mM $MgCl_2$, 1% Triton X-100

10X Mg-Free Key Buffer: Tris-HCl pH 8,5, $(NH_4)_2SO_2$, 1% Tween-20®

10X Mg-Free Extra Buffer: Tris-HCl pH 8,3, KCl, 1% Triton X-100

Delivery information: VWR® Taq DNA Polymerase is usually supplied with either or both Key Buffer and Extra Buffer. Key Buffer (NH_4^+) gives a superior amplification signal (high yield) and minimises the need for optimisation of the Mg^{2+} concentration or the annealing temperature in most primer-template systems. Extra Buffer is a traditional potassium (K^+) buffer. Extra Buffer promotes high specificity but careful optimisation of primer annealing temperatures and Mg^{2+} concentrations may be required.

Description	Pk	Cat. No.
Taq DNA Polymerase, 10X Key Buffer (15 mM $MgCl_2$), 10X Extra Buffer (15 mM $MgCl_2$), 25 mM $MgCl_2$	250 EU	**733-1300**
Taq DNA Polymerase, 10X Key Buffer (15 mM $MgCl_2$), 10X Extra Buffer (15 mM $MgCl_2$), 25 mM $MgCl_2$	500 EU	**733-1301**
Taq DNA Polymerase, 10X Key Buffer (15 mM $MgCl_2$), 10X Extra Buffer (15 mM $MgCl_2$), 25 mM $MgCl_2$	1.000 EU	**733-1302**
Taq DNA Polymerase, 10X Key Buffer (15 mM $MgCl_2$), 10X Extra Buffer (15 mM $MgCl_2$), 25 mM $MgCl_2$	2.500 EU	**733-1819**
Taq DNA Polymerase, 10X Key Buffer (15 mM $MgCl_2$), 10X Extra Buffer (15 mM $MgCl_2$), 25 mM $MgCl_2$	5.000 EU	**733-1820**
Taq DNA Polymerase, 10X Key Buffer (15 mM $MgCl_2$), 10X Extra Buffer (15 mM $MgCl_2$), 25 mM $MgCl_2$	10.000 EU	**733-1303**
Taq DNA Polymerase, 10X $MgCl_2$-free Key Buffer, 25 mM $MgCl_2$	500 EU	**733-1311**
Taq DNA Polymerase, 10X $MgCl_2$-free Key Buffer, 25 mM $MgCl_2$	1.000 EU	**733-1312**
Taq DNA Polymerase, 10X $MgCl_2$-free Key Buffer, 25 mM $MgCl_2$	2.500 EU	**733-1313**
Taq DNA Polymerase, 10X $MgCl_2$-free Key Buffer, 25 mM $MgCl_2$	10.000 EU	**733-2009**
Taq DNA Polymerase, 10X $MgCl_2$-free Extra Buffer, 25 mM $MgCl_2$	500 EU	**733-1304**
Taq DNA Polymerase, 10X $MgCl_2$-free Extra Buffer, 25 mM $MgCl_2$	1.000 EU	**733-1305**
Taq DNA Polymerase, 10X Tween-free Key Buffer (15 mM $MgCl_2$), 10X Triton-free Extra Buffer (15 mM $MgCl_2$), 25 mM $MgCl_2$	500 EU	**733-2407**
Taq DNA Polymerase, 10X Tween-free Key Buffer (15 mM $MgCl_2$), 10X Triton-free Extra Buffer (15 mM $MgCl_2$), 25 mM $MgCl_2$	1.000 EU	**733-1307**
Taq DNA Polymerase, 10X Tween-free Key Buffer (15 mM $MgCl_2$), 10X Triton-free Extra Buffer (15 mM $MgCl_2$), 25 mM $MgCl_2$	10.000 EU	**733-1823**
Red Taq DNA Polymerase, 10X Key Buffer (15 mM $MgCl_2$), 10X Extra Buffer (15 mM $MgCl_2$), 25 mM $MgCl_2$	500 EU	**733-2408**
Red Taq DNA Polymerase, 10X Key Buffer (15 mM $MgCl_2$), 10X Extra Buffer (15 mM $MgCl_2$), 25 mM $MgCl_2$	1.000 EU	**733-2409**
Red Taq DNA Polymerase, 10X Key Buffer (15 mM $MgCl_2$), 10X Extra Buffer (15 mM $MgCl_2$), 25 mM $MgCl_2$	2.500 EU	**733-1323**
Red Taq DNA Polymerase, 10X Key Buffer (15 mM $MgCl_2$), 10X Extra Buffer (15 mM $MgCl_2$), 25 mM $MgCl_2$	10.000 EU	**733-1834**
Taq DNA Polymerase, glycerol-free, without Key or Extra Buffer, 25 mM $MgCl_2$, 200 000 units	1 KIT	**733-2038**
Taq DNA Polymerase, glycerol-free, without Key or Extra Buffer, 25 mM $MgCl_2$	5.000 EU	**733-1999**
Taq DNA Polymerase, glycerol-free, 10X Key Buffer (15 mM $MgCl_2$), 10X Extra Buffer (15 mM $MgCl_2$), 25 mM $MgCl_2$	500 EU	**733-2410**
Taq DNA Polymerase, glycerol-free, 10X Key Buffer (15 mM $MgCl_2$), 10X Extra Buffer (15 mM $MgCl_2$), 25 mM $MgCl_2$	1.000 EU	**733-1817**

EU = Units

Taq DNA Polymerase Master Mix

VWR® Taq DNA Polymerase Master Mix is a ready to use 1,1X or 2X reaction mix. Simply add primers, template and water to carry out primer extensions and other molecular biology applications.

VWR® Red Taq DNA Polymerase Master Mix, which also contains an inert red dye, can be directly loaded onto an agarose gel without addition of electrophoresis loading buffers.

Description	Pk	Cat. No.
Taq DNA Polymerase 1,1X Master Mix, 1,5 mM $MgCl_2$	2.500 Tests	**733-1314**
Taq DNA Polymerase 1,1X Master Mix, 1,5 mM $MgCl_2$	500 Tests	**733-2540**
Taq DNA Polymerase 1,1X Master Mix, 2,0 mM $MgCl_2$	2.500 Tests	**733-1315**
Taq DNA Polymerase 1,1X Master Mix, 2,0 mM $MgCl_2$	500 Tests	**733-2541**
Taq DNA Polymerase 2X Master Mix, 1,5 mM $MgCl_2$	2.500 Tests	**733-1316**
Taq DNA Polymerase 2X Master Mix, 1,5 mM $MgCl_2$	500 Tests	**733-2542**
Taq DNA Polymerase 2X Master Mix, 2,0 mM $MgCl_2$	2.500 Tests	**733-1317**
Taq DNA Polymerase 2X Master Mix, 2,0 mM $MgCl_2$	500 Tests	**733-2543**
Red Taq DNA Polymerase 1,1X Master Mix, 1,5 mM $MgCl_2$	2.500 Tests	**733-1318**
Red Taq DNA Polymerase 1,1X Master Mix, 1,5 mM $MgCl_2$	500 Tests	**733-2544**
Red Taq DNA Polymerase 1,1X Master Mix, 2,0 mM $MgCl_2$	2.500 Tests	**733-1319**
Red Taq DNA Polymerase 1,1X Master Mix, 2,0 mM $MgCl_2$	500 Tests	**733-2545**
Red Taq DNA Polymerase 2X Master Mix, 1,5 mM $MgCl_2$	2.500 Tests	**733-1320**
Red Taq DNA Polymerase 2X Master Mix, 1,5 mM $MgCl_2$	5.000 Tests	**733-2130**
Red Taq DNA Polymerase 2X Master Mix, 1,5 mM $MgCl_2$	10.000 Tests	**733-2131**
Red Taq DNA Polymerase 2X Master Mix, 1,5 mM $MgCl_2$	20.000 Tests	**733-2132**
Red Taq DNA Polymerase 2X Master Mix, 1,5 mM $MgCl_2$	500 Tests	**733-2546**
Red Taq DNA Polymerase 2X Master Mix, 2,0 mM $MgCl_2$	2.500 Tests	**733-1321**
Red Taq DNA Polymerase 2X Master Mix, 2,0 mM $MgCl_2$	500 Tests	**733-2547**

Tests = Reactions

TEMPase Hot Start DNA Polymerase

VWR® TEMPase Hot Start DNA Polymerases are highly stable polymerases, featuring higher specificity, superior sensitivity and greater yields compared to standard DNA polymerases. These features make them well suited for detection of low abundance targets. Other uses include screening, amplification of GC-rich sequences, multiplex PCR, direct PCR and qPCR. A glycerol-free TEMPase Hot Start DNA Polymerase is also available for automation and freeze drying.

The GC-Rich Template kit is specifically designed for difficult GC-rich sequences. Combined with TEMPase, GC buffers I and II promote excellent amplification. The kit is designed for initial testing before using one of the GC-TEMPase 2X Master Mixes.

Delivery information: VWR® TEMPase DNA polymerases generally include two different buffers, Key Buffer and Combination Buffer, which are each suited for different PCR requirements. Key Buffer (NH_4^+) gives a superior amplification signal (high yield) and minimises the need for optimisation of the Mg^{2+} concentration or the annealing temperature in most primer-template systems. Combination Buffer is a mixture of K^+ and NH_4^+. It combines high specificity with good product yield and high tolerance to optimisation of primer annealing temperatures and Mg^{2+} concentrations due to its balanced ammonium-potassium formulation. Each buffer contains 15 mM $MgCl_2$ (1,5 mM in final volume). Additional $MgCl_2$ for easy optimisation is included in a separate vial.

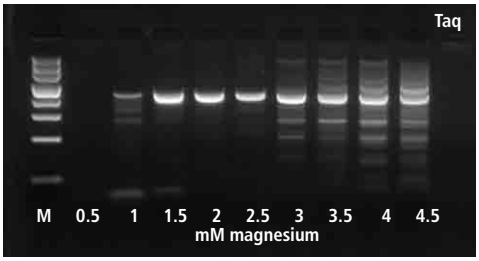
Description	Pk	Cat. No.
TEMPase Hot Start DNA Polymerase, 5 U/µl, with 10X Key Buffer, 10X Combination Buffer and $MgCl_2$	500 EU	**733-1331**
TEMPase Hot Start DNA Polymerase, 5 U/µl, with 10X Key Buffer, 10X Combination Buffer and $MgCl_2$	2.500 EU	**733-1333**
TEMPase Hot Start DNA Polymerase, 5 U/µl, with 10X Key Buffer, 10X Combination Buffer and $MgCl_2$	10.000 EU	**733-1838**
TEMPase Hot Start DNA Polymerase, glycerol-free, 5 U/µl, without buffers	500 Tests	**733-2552**
TEMPase Hot Start DNA Polymerase, glycerol-free, 5 U/µl, without buffers	2.500 Tests	**733-2553**
TEMPase Hot Start DNA Polymerase, glycerol-free, 5 U/µl, with 10X Key Buffer and $MgCl_2$	500 Tests	**733-2555**
TEMPase Hot Start DNA Polymerase, glycerol-free, 5 U/µl, with 10X Key Buffer and $MgCl_2$	2.500 Tests	**733-2556**
TEMPase Hot Start DNA Polymerase, glycerol-free, 5 U/µl, with 10X Combination Buffer and $MgCl_2$	500 Tests	**733-2558**
TEMPase Hot Start DNA Polymerase, glycerol-free, 5 U/µl, with 10X Combination Buffer and $MgCl_2$	2.500 Tests	**733-2559**
GC-Rich DNA Target kit, with TEMPase Hot Start DNA Polymerase, 4X GC Buffers I and II, and 25 mM $MgCl_2$	500 Tests	**733-2567**

VWR® TEMPase Hot Start Polymerase

VWR TEMPase Hot Start DNA Polymerase is a chemically modified form of Taq Polymerase. A chemical moiety is attached to the enzyme, which reversibly inactivates the TEMPase. This allows convenient reaction set-up at room temperature and even plate preparation up to 2 days in advance. TEMPase is activated by heat treatment during the first heating step.

HIGH YIELDS, SUPERIOR SPECIFICITY AND EXCELLENT SENSITIVITY

The complete inactivity at room temperature and during the first ramp of thermal cycling leads to decreased formation of non specific priming and prevents false amplification. This results in higher specificity, increased sensitivity and greater yields when compared to standard DNA polymerases (Figures 1 and 2).



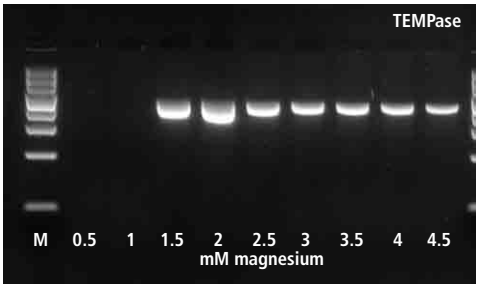


Figure 1. Superior specificity and high yields. BAIP3 gene product was amplified in a PCR using Taq Polymerase or TEMPase Hot Start DNA Polymerase and Key Buffer with a magnesium dilution series from 0.5 to 4.5 mM in 0.5 mM increments. Taq Polymerase results in good yield and satisfactory specificity (lanes 1.5 to 2.5). With TEMPase Polymerase, an increase in yield (lanes 1. 5 to 2.5) and specificity (lanes 1.5 to 4.5) is seen. M: Marker.

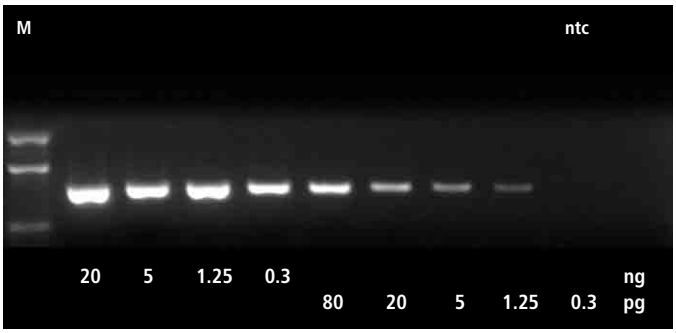


Figure 2. Excellent sensitivity. TEMPase Hot Start Polymerase has high sensitivity and is able to detect as little as 1 copy of a gene. In this experiment the indicated amounts of DNA were amplified in a PCR using TEMPase and Key Buffer. DNA quantities are given in ng or pg under each lane. M: marker; ntc: no template control.

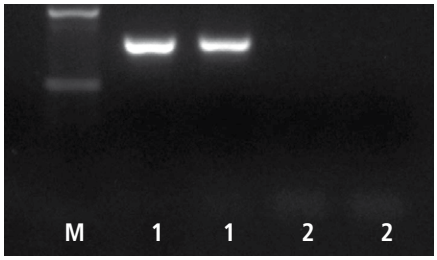


Figure 3. TEMPase is inactive at ambient temperature.
VWR TEMPase is activated by initial heating at 95 °C for 15 minutes (lane 1). Without activation, the enzyme is completely inactive (lane 2). M: marker.

ADVANTAGE OF CHEMICAL INACTIVATION

Chemical inactivation of TEMPase is highly effective (Figure 3). Therefore, the modified enzyme withstands longer periods of time at room temperature without any non specific PCR amplification compared to, for example, antibody inactivated enzymes. This feature is also useful when pre-incubation steps at elevated temperatures are required, such as UNG treatment at 50 °C prior to PCR.

Blue TEMPase Master Mix – for direct gel loading

VWR Blue TEMPase Master Mix is a convenient alternative to TEMPase Hot Start DNA Polymerase and TEMPase Hot Start Master Mix with the same excellent performance. The blue loading dye and stabiliser present in Blue TEMPase Master Mix do not interfere with the PCR reaction. These components facilitate direct gel loading and eliminate the necessity for separate loading dye (Figure 4). There is no need for time-consuming sample preparation before electrophoresis.

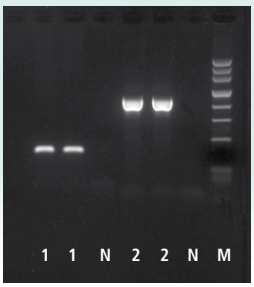


Figure 4. Direct gel loading.
After PCR using Blue TEMPase Master Mix, the products are loaded directly on the agarose gel. Lanes 1 and 2: two different primer sets; lanes N: no template control; lane M: marker.

GC-RICH DNA AMPLIFICATION

TEMPase Hot Start DNA Polymerase is well suited for amplification of GC-rich DNA targets. Combined with GC Buffer I and GC Buffer II, TEMPase Hot Start DNA Polymerase promotes excellent amplification results with targets of varying degrees of GC content (Figure 5). The thorough heat activation step required for TEMPase is beneficial when amplifying GC-rich DNA sequences.

MULTIPLEX PCR

Multiplex PCR is a method to amplify several products from the same DNA sample in one tube. TEMPase Hot Start DNA Polymerase is well suited for multiplex PCR due to its high specificity (Figure 6).

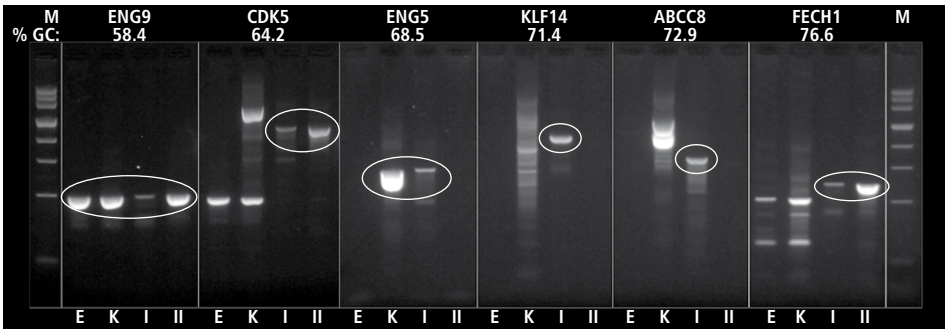


Figure 5. Amplification of GC-rich DNA sequences with diverse buffers.
The indicated six genes with a varying percentage of GC content were amplified with Extra Buffer (lanes E), Key Buffer (lanes K), GC Buffer I (lanes I) and GC buffer II (lanes II). With an increasing percentage of GC in the expected amplicon, Extra Buffer and Key Buffer fail to give the correct amplification products while GC Buffer I or GC Buffer II succeeds. M: marker.
Notice: Key Buffer is the buffer of choice for most PCR applications. To obtain a good result for ENG5 it is sufficient only to change the buffer from Extra Buffer to Key Buffer.

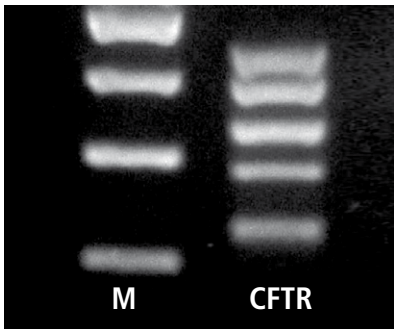


Figure 6. TEMPase performs well in Multiplex PCR.
Five different products of the CFTR gene were simultaneously amplified in one tube using VWR Multiplex TEMPase Master Mix. M: marker; CFTR: the five products of the multiplex reaction.

TEMPase Hot Start 2X Master Mix

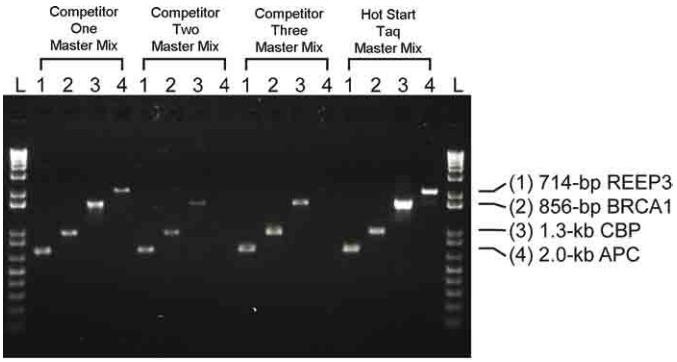
TEMPase Hot Start DNA Polymerase Master Mix and Blue TEMPase Master Mix are good alternatives to TEMPase Hot Start DNA Polymerase. The master mixes offer easy reaction assembly at room temperature, reduced set-up time and fewer handling steps, which lead to increased reproducibility. As a consequence TEMPase Hot Start DNA Polymerase Master Mix is highly suited for standard tests.

The blue loading dye in Blue TEMPase Hot Start DNA Polymerase Master Mix facilitates direct gel loading and eliminates the need for separate loading dye - no need for time-consuming sample preparation before electrophoresis.

Ready-to-use GC TEMPase 2X Master Mixes I and II are designed for amplification of GC-rich sequences. Multiplex 2X Master Mix is composed of TEMPase Hot Start DNA Polymerase and a specialised buffer system designed for multiplex PCR.

Delivery information: TEMPase Hot Start DNA Polymerase Master Mix and Blue TEMPase Master Mix are available in two variations, either based on Key Buffer (Master Mix K) or Combination Buffer (Master Mix C) to suit different PCR requirements. Additional $MgCl_2$ is included in the kit to enable optimisation.

Description	Pk	Cat. No.
TEMPase Hot Start 2X Master Mix, with Master Mix K, 1,5 mM $MgCl_2$	100 Tests	**733-2411**
TEMPase Hot Start 2X Master Mix, with Master Mix K, 1,5 mM $MgCl_2$	500 Tests	**733-2581**
TEMPase Hot Start 2X Master Mix, with Master Mix K, 1,5 mM $MgCl_2$	2.500 Tests	**733-2582**
TEMPase Hot Start 2X Master Mix, with Master Mix C, 1,5 mM $MgCl_2$	100 Tests	**733-2412**
TEMPase Hot Start 2X Master Mix, with Master Mix C, 1,5 mM $MgCl_2$	500 Tests	**733-2548**
TEMPase Hot Start 2X Master Mix, with Master Mix C, 1,5 mM $MgCl_2$	2.500 Tests	**733-1840**
Blue TEMPase Hot Start 2X Master Mix, with Blue Master Mix K, 1,5 mM $MgCl_2$	100 Tests	**733-2413**
Blue TEMPase Hot Start 2X Master Mix, with Blue Master Mix K, 1,5 mM $MgCl_2$	500 Tests	**733-2584**
Blue TEMPase Hot Start 2X Master Mix, with Blue Master Mix K, 1,5 mM $MgCl_2$	2.500 Tests	**733-2585**
Blue TEMPase Hot Start 2X Master Mix, with Blue Master Mix C, 1,5 mM $MgCl_2$	100 Tests	**733-2414**
Blue TEMPase Hot Start 2X Master Mix, with Blue Master Mix C, 1,5 mM $MgCl_2$	500 Tests	**733-2290**
Blue TEMPase Hot Start 2X Master Mix, with Blue Master Mix C, 1,5 mM $MgCl_2$	2.500 Tests	**733-1841**
GC TEMPase Hot Start 2X Master Mix, with Master Mix I, 1,5 mM $MgCl_2$	100 Tests	**733-2415**
GC TEMPase Hot Start 2X Master Mix, with Master Mix I, 1,5 mM $MgCl_2$	500 Tests	**733-2561**
GC TEMPase Hot Start 2X Master Mix, with Master Mix I, 1,5 mM $MgCl_2$	2.500 Tests	**733-2562**
GC TEMPase Hot Start 2X Master Mix, with Master Mix II, 1,5 mM $MgCl_2$	100 Tests	**733-2416**
GC TEMPase Hot Start 2X Master Mix, with Master Mix II, 1,5 mM $MgCl_2$	500 Tests	**733-2564**
GC TEMPase Hot Start 2X Master Mix, with Master Mix II, 1,5 mM $MgCl_2$	2.500 Tests	**733-2565**
Multiplex TEMPase Hot Start 2X Master Mix, 1,5 mM $MgCl_2$ with separate vial of $MgCl_2$	100 Tests	**733-2417**
Multiplex TEMPase Hot Start 2X Master Mix, 1,5 mM $MgCl_2$ with separate vial of $MgCl_2$	500 Tests	**733-2568**
Multiplex TEMPase Hot Start 2X Master Mix, 1,5 mM $MgCl_2$ with separate vial of $MgCl_2$	2.500 Tests	**733-2569**



Hot Start Taq PCR Mastermix, 2X

Hot Start Taq Master Mix, 2X is a ready-to-use reaction cocktail that contains all required components, except primers and template DNA, for routine PCR amplification of DNA fragments up to 4 kb. The included Taq DNA polymerase is inactivated with proprietary monoclonal antibodies. Incubation at ≥94°C during PCR thermal cycling irreversibly denatures the antibody and releases full Taq DNA polymerase activity.

Description	Pk	Cat. No.
Hot Start Taq PCR Mastermix, 2X, 100 reactions	1 KIT	**1B1408-100RXN**
Hot Start Taq PCR Mastermix, 2X, 500 reactions	1 KIT	**1B1408-500RXN**
Hot Start Taq PCR Mastermix, 2X, 2000 reactions	1 KIT	**1B1408-2000RXN**

Proofreading DNA polymerase, AccuPOL

AccuPOL DNA Polymerase is a thermostable enzyme that possesses 3' - 5' exonuclease proofreading ability, which enables the polymerase to correct nucleotide misincorporation errors. AccuPOL is recommended for applications which require extremely high fidelity with low error rate. PCR fragments generated with AccuPOL DNA Polymerase are also ideal for blunt end cloning.

Optimal reaction conditions are achieved by using the 10X Key Buffer containing 15 mM $MgCl_2$ provided with the enzyme. A separate vial of 25 mM $MgCl_2$ is also included in case a higher $MgCl_2$ concentration is required for a specific reaction.

- The choice for high fidelity amplifications
- Provides 16x higher fidelity than Taq DNA polymerase
- Optimal for blunt end cloning
- Processes up to 3 kb with extremely high fidelity

Description	Pk	Cat. No.
AccuPOL DNA Polymerase (2,5 U/µl), with 10X Key Buffer (15 mM $MgCl_2$), 25 mM $MgCl_2$	250 EU	**733-1324**
AccuPOL DNA Polymerase (2,5 U/µl), with 10X Key Buffer (15 mM $MgCl_2$), 25 mM $MgCl_2$	500 EU	**733-1325**
AccuPOL DNA Polymerase (2,5 U/µl), with 10X Key Buffer (15 mM $MgCl_2$), 25 mM $MgCl_2$	1.000 EU	**733-1326**
AccuPOL DNA Polymerase (2,5 U/µl), with 10X Key Buffer (Mg-free, Tween®-free), 25 mM $MgCl_2$	250 EU	**733-1328**
AccuPOL DNA Polymerase (2,5 U/µl), with 10X Key Buffer (Mg-free, Tween®-free), 25 mM $MgCl_2$	1.000 EU	**733-1329**

EU = Units

dNTP

Ready to use molecular biology grade dNTP mixes and dNTP sets.

The dNTP mix is designed to save hands-on time for researchers and reduce the possibility of contamination by reducing pipetting. The dNTP solutions are also available in sets of four individual dNTPs, each 100 mM. Both are convenient for use in DNA polymerisation reactions, DNA labelling and sequencing processes.

- Available as pre-mixed 10 mM or 25 mM solutions, or as sets of individual 100 mM dNTP solutions
- Both pre-mixed and sets have been functionally tested in PCR
- Purity >99% by HPLC
- Supplied in solution at pH 7,3 - 7,5

Description	Pk	Cat. No.
dNTP mix, 10 mM of each dA, dC, dG, and dT, 2×500 µl	1000 µl	**733-1363**
dNTP set, separate vials of dA, dC, dG, dT, each 100 mM, 4×250 µl	1 SET	**733-1364**
dNTP mix, 25 mM of each dA, dC, dG, and dT, 2×1 ml	2000 µl	**733-1854**
dNTP set, separate vials of dA, dC, dG, dT, each 100 mM, 16×250 µl	1 SET	**733-1855**

E.Z.N.A.® and E-Z 96® Cycle Pure Kits

VWR - Omega Bio-Tek

E.Z.N.A.® Cycle Pure Kits are designed for the rapid purification of single- or double-stranded DNA from PCR or other enzymatic reactions. The purification procedure completely removes primers, nucleotides, enzymes, salts, and other impurities from DNA samples. E.Z.N.A.® MicroElute Cycle Pure Kits are specifically intended to purify PCR samples with a small elution volume of 10 to 15 µl. The E-Z® 96 Cycle Pure Kit procedure allows for the parallel purification of up to 96 PCR samples from multiple amplifications. The E-Z® 96 Cycle Pure Kit utilises multiwell technology for manual or fully automated high throughput purification.

Description	Pk	Cat. No.
E.Z.N.A.® MicroElute Cycle Pure Kit	50 Tests	**D6293-01**
E.Z.N.A.® MicroElute Cycle Pure Kit	200 Tests	**D6293-02**
E.Z.N.A.® Cycle Pure Kit (V-Spin column)	50 Tests	**D6492-01**
E.Z.N.A.® Cycle Pure Kit (V-Spin column)	200 Tests	**D6492-02**
E.Z.N.A.® Cycle Pure Kit (Q-spin)	50 Tests	**D6493-01**
E.Z.N.A.® Cycle Pure Kit (Q-spin)	200 T	**D6493-02**
E-Z 96® Cycle Pure Kit (1×96)	1 KIT	**D1043-01**
E-Z 96® Cycle Pure Kit (5×96)	1 KIT	**D1043-02**

Mag-Bind® RXNPure Plus Kit

VWR - Omega Bio-Tek

Mag-Bind® RXNPure Plus Kit allows rapid and reliable isolation DNA from PCR and enzymatic reactions with high recovery rates. The system combines proprietary chemistries with the reversible nucleic acid-binding properties of magnetic beads that selectively bind PCR amplicons 100 bp and larger, and eliminate excess nucleotides, primers and small, non-targeted amplification products, such as primer dimers.

This kit is designed for both manual and fully automated purification and may not require reprogramming of liquid handling instruments depending on your current method.

- Efficiently removes excess primers, primer-dimers, dNTPs and salts
- No centrifugation/filtration steps
- Scalable - can be adapted to most standard liquid handling robots
- Use in 96 or 384 well format

Description	Pk	Cat. No.
Mag-Bind® RXNPure Plus Kit	50 ml	**M1386-01**
Mag-Bind® RXNPure Plus Kit	500 ml	**M1386-02**

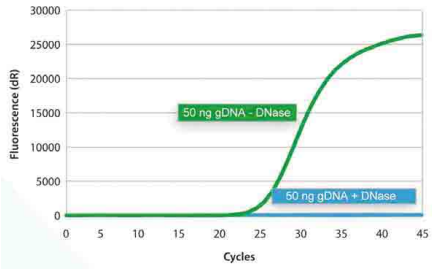
Mag-Bind® E-Z Pure Kit

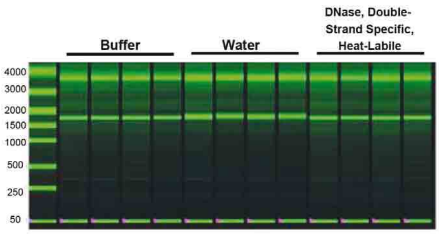
VWR - Omega Bio-Tek

The Mag-Bind® E-Z Pure Kit procedure utilises a magnetic based purification method to selectively bind PCR amplicons 100 bp and higher. The Mag-Bind® E-Z Pure Kit is ideally designed for automated purification of PCR samples. By using the highly efficient binding ability of Mag-Bind® technology, DNA fragments are selectively bound to the surface of Mag-Bind® particles. Salts and other impurities are washed away with two quick wash steps. This kit is suitable for both manual and fully automated processing. Purified DNA is ready for downstream applications include microarrays, automated fluorescent DNA sequencing, and restriction enzyme digestion.

- Efficiently removes excess primers, primer-dimers, dNTPs and salts
- No centrifugation/filtration steps
- Scalable - can be adapted to most standard liquid handling robots
- Use in 96 or 384 well format

Description	Pk	Cat. No.
Mag-Bind® PCR Clean Up Kit (4×96)	1 KIT	**M1382-01**
Mag-Bind® PCR Clean Up Kit (100×96)	1 KIT	**M1382-03**





Heat-labile DNAase, double-strand specific (HL-dsDNase)

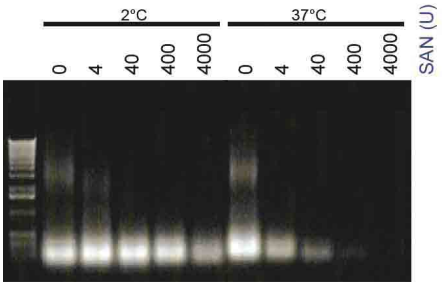
Heat-Labile DNAase, Double-Strand Specific (HL-dsDNase) is a recombinant endonuclease that cleaves phosphodiester bonds in DNA to yield 2 to 8bp oligonucleotides with 5'-phosphate and 3'-hydroxyl termini. The high specific activity of this enzyme toward dsDNA can be inactivated by heating at 55 °C, conveniently eliminating the need for its physical or chemical removal before downstream processing, even in the presence of RNA and ssDNA, such as primers and probes. HL-dsDNase is ideal for removal of genomic DNA in RNA preps and for removal of DNA carryover contamination in PCR mixes, before the addition of the template.

- High specificity for dsDNA, while leaving ssDNA and RNA intact
- Heat inactivates completely and irreversibly at 55 °C
- Ideal for genomic DNA removal in RNA preps

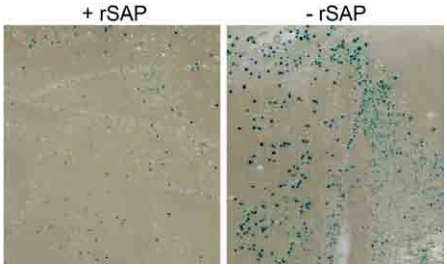
Description	Pk	Cat. No.
HL-dsDNase, 1000 U	1 KIT	**1B1662-1000U**
HL-dsDNase, 250 U	1 KIT	**1B1662-250U**

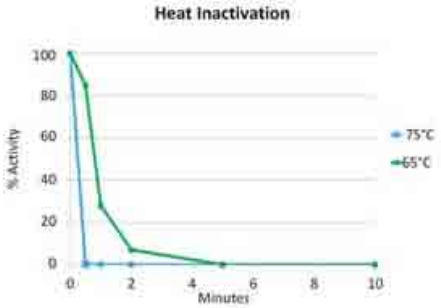
Salt active nuclease (SAN)

Salt Active Nuclease (SAN) is a very active, non specific endonuclease from Pichia pastoris that cleaves double- and single-stranded DNA and RNA. It is active at above neutral pH (optimal pH 8,5) over a wide temperature range (10 to 400 °C), and unlike other nucleases it has optimum activity at high concentrations of salt (0,5 M NaCl). SAN is ideal for use in removal of DNA and RNA from cell extracts and protein samples. Thus, it is very useful in recombinant protein purifications.



Description	Pk	Cat. No.
Salt active nuclease, 25 KU	25 KU	**1B1664-25KU**
Salt active nuclease, 5 KU	5 KU	**1B1664-5KU**





Shrimp alkaline phosphatase, recombinant (rSAP)

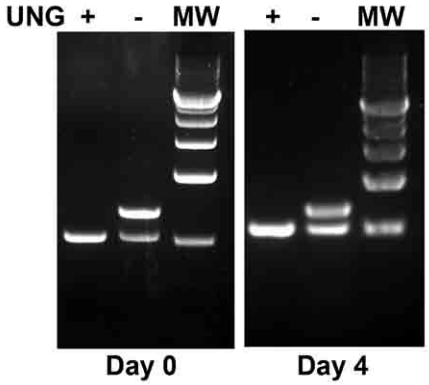
Shrimp alkaline phosphatase, recombinant (rSAP) is a heat-labile hydrolase enzyme produced in Pichia pastoris that removes phosphate groups non specifically from 5′ ends of nucleic acid phosphomonoesters and proteins. This activity is most commonly utilised in molecular cloning to prevent self-ligation of linearised plasmid DNA and in 5′ end-labelling to facilitate the replacement of unlabelled phosphates with labeled phosphate groups. rSAP also prepares PCR products for DNA sequencing or SNP analysis, by dephosphorylating unincorporated dNTPs that would otherwise interfere with enzymatic reactions.

rSAP may be directly added to restriction enzyme digests and is conveniently 100% inactivated by heating at 65 °C. This eliminates the need for vector purification, a necessary step when using alkaline phosphatases isolated from other sources, such as E. coli and calf intestine. rSAP works well in common buffers and does not require supplemental zinc or other additives.

- Removes 5′-phosphates from DNA, RNA, dNTPs, and proteins
- Improves cloning efficiency by preventing vector recircularisation
- 100% heat-inactivated at 65°C, no vector purification necessary
- Removes unincorporated dNTPs in PCR products prior to DNA sequencing or SNP analysis
- Prepares templates for 5′ end labelling
- Dephosphorylates proteins
- Works in many different buffers without supplemental factors

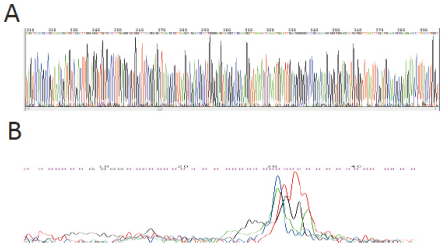
Description	Pk	Cat. No.
rSAP, 1 KU	1 KU	1B1633-1KU
rSAP, 5 KU	5 KU	1B1633-5KU

Uracil-DNA glycosylase (UNG), cod



Uracil-DNA glycosylase (UNG), cod is a thermolabile recombinant enzyme produced in E. coli (ung-) using a modified ung gene derived from Atlantic cod. It degrades uracil-containing single- and double-stranded DNA, but not RNA or thymidine-containing DNA, by hydrolysing the N-glycosidic bond between deoxyribose sugar and the base in uracil. This generates alkaline-sensitive apyramidinic sites in the DNA that will be cleaved upon a combination of alkaline conditions and high temperature.

Pre-treatment of samples with UNG prevents PCR carryover contamination in laboratories that substitute dUTP in place of dTTP during all amplification reactions. PCR products containing uracil become substrates for UNG and will be degraded if they are present in subsequent reaction mixtures subjected to UNG treatment. Only DNA templates containing thymidine are not degraded by the treatment and will be amplified.



Recombinant cod UNG is irreversibly heat inactivated, which enables long-term storage and subsequent analysis of post-PCR amplicons in applications such as cloning and sequencing. UNG is compatible with PCR, qPCR and one-step qRT-PCR and works in all commercially available master mixes. All amplification reactions must use dUTP containing dNTP mixtures in order for the UNG decontamination method to be effective.

- Complete, irreversible heat-inactivation
- Prevents carryover contamination in PCR, qPCR and qRT-PCR
- Effective with only a 5 minute incubation step

Description	Pk	Cat. No.
UNG, 100 U	0,1 KU	1B1634-0.1KU
UNG, 1000 U	1 KU	1B1634-1KU

PCR tubes and strips

732-0546

211-0339

731-0367

PP

Designed to fit most popular brands of thermal cycler.

- Certified free from DNase, RNase and Human DNA
- Autoclavable
- Available with domed or flat caps

Description	Colour	Capacity (ml)	Pk	Cat. No.
PCR tubes				
Individual PCR tubes, with attached flat caps	Clear	0,2	1.000	**732-0548**
Individual PCR tubes, with attached domed caps	Clear	0,2	1.000	**732-0547**
8-tube strips for PCR, with individually attached domed caps	Clear	0,2	120	**732-0545**
8-tube strips for PCR, with attached domed cap strips	Clear	0,2	125	**732-0546**
12-tube strips for PCR, without caps	Clear	0,2	80	**732-0552**
12-tube strips for PCR, with separate domed cap strips	Clear	0,2	80	**732-0554**
qPCR tubes				
8-tube strips for qPCR with individually attached, optically clear, flat caps	Clear	0,2	120	**211-0338**
8-tube strips, low profile for qPCR with individually attached, optically clear, flat caps	Clear	0,2	120	**211-0339**
8-tube strips for qPCR with individually attached, optically clear, hinged flat caps	Clear	0,2	125	**211-0381**
8-tube strips, for qPCR with individually attached, optically clear, flat caps and opaque white wells	White	1,0	120	**731-0367**

Description	Pk	Cat. No.
Accessories		
Strip caps for 12-well, 0,2 ml PCR tube strips	80	**732-0553**

PCR tube strips, 0,2 ml, and cap strips

PP

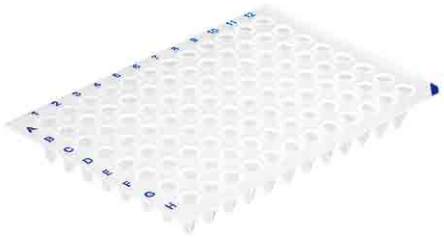
Designed to fit most popular brands of thermal cycler.

- Certified free from DNase, RNase and Human DNA
- Available with domed or flat caps

Description	Colour	Pk	Cat. No.
Strips of 8 PCR tubes, without caps	Clear	125	**732-1517**
Strips of 8 PCR tubes, with detached flat cap strips	Clear	250	**732-1520**
Strips of 8 PCR tubes, with detached domed cap strips	Clear	250	**732-1521**
Strips of 8 PCR caps, domed	Clear	125	**732-1518**
Strips of 8 PCR caps, flat	Clear	125	**732-1519**

PCR plates, 96-well

732-2387



732-2386

732-2388

PP

These PCR plates are compatible with most thermal cyclers, including the Applied Biosystems 9600 and 9700, and the MJ Research PTC-100, and are ideal for high throughput screening thermal cycler applications.

- Smooth, thin, uniform well walls ensure accurate thermal transfer
- Plates are thin, flexible and easy to cut
- Certified free from DNase, RNase and human genomic DNA
- Printed alphanumeric labelling and cut corner simplifies plate orientation and sample identification

Working capacity: 200 µl

Description	Colour	Pk	Cat. No.
Standard profile, non-skirted	Clear	100	**732-2387**
Low profile, non-skirted	Clear	100	**732-2386**
Fully skirted	Clear	100	**211-0297**
Raised well	Clear	100	**211-0269**
Half-skirted	Clear	100	**732-2390**
Low profile, half-skirted	Clear	100	**732-2388**
Low profile, raised half-skirt	Clear	100	**732-2389**

Description	Colour	Pk	Cat. No.
Accessories			
Strips of 8 PCR caps, domed	Clear	125	**732-1518**
Strips of 8 PCR caps, flat	Clear	125	**732-1519**

PCR plates, 384-well

PP

These PCR plates are compatible with most thermal cyclers and are ideal for high throughput screening thermal cycler applications.

- Smooth, thin, uniform well walls ensure accurate thermal transfer
- Wells are slightly raised to accommodate sealing mats, films or foils
- Plates are skirted to allow barcoding and include a frosted labelling area
- Lot tested and certified free from DNase, RNase and human genomic DNA
- Printed alphanumeric labelling simplifies plate and sample identification

Working capacity: 25 µl

Description	Colour	Pk	Cat. No.
PCR plates, 384-well	Natural	100	**211-0305**

qPCR plates, 96-well

PP

These white PCR plates and optically clear cap closures are suitable for Real-Time PCR applications. White qPCR plates are designed to enable sensitive and accurate fluorenscence detection. When used with together with the ultra-clear caps or optical seals, these products will increase sensitivity and reduce variablility in qPCR assays.

- Smooth, thin, uniform well walls ensure accurate thermal transfer
- Wells are slightly raised to accept optically clear strip caps or sealing film
- Certified free from DNase, RNase and human genomic DNA

Working capacity: 200 µl

Description	Colour	Pk	Cat. No.
Standard plate for qPCR	White	100	**211-0313**
Fully skirted qPCR plate	White	100	**211-0315**
Semi skirted qPCR plate	White	100	**211-0317**

Description	Pk	Cat. No.
Accessories		
Optically clear 8-cap strips for Real-Time PCR plates	125	**211-0350**

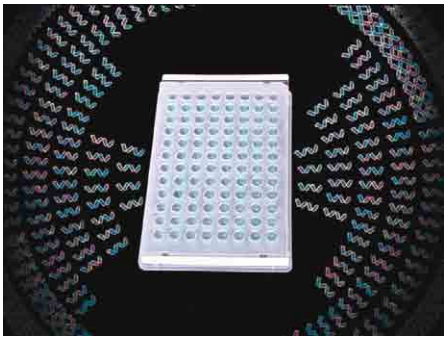
Adhesive PCR film seals

These heat resistant 50 µm thick films are designed for thermal cycling applications. Polypropylene films are not pierceable. For PCR applications where piercing with pipette tips or robotic probes is required for product recovery, use aluminium foil films. For Real-Time PCR applications where maximum optical clarity is required, use optically clear polyester films.

- Recommended for temperatures from –40 °C to +120 °C
- Certified free from DNase, RNase and nuclease

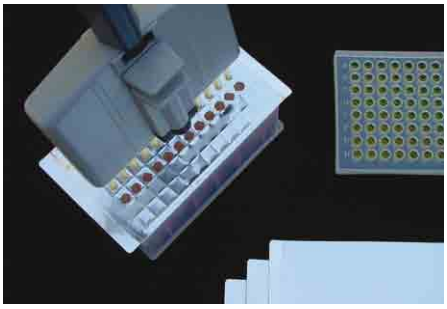
Each film L×D: 135,1×79,4 mm with sufficient sealing area for all PCR plates

Length with end-tabs removed: 123,1 mm



Description	Pk	Cat. No.
PP, non sterile	100	**391-1254**
PP, sterile	100	**391-1255**
PP, non sterile, strips to seal 2×8 wells	200	**731-0321**
Advanced PP films, non sterile*	100	**391-1294**

* stronger, thicker adhesive and cut to fit raised-rim plates



Adhesive PCR foil seals

These soft non permeable 38 µm thick aluminium foils with strong medical grade adhesive eliminate the need for heat-sealing devices or mats during thermal cycling. Compared to other aluminium foils, these foils have less tendency to roll back on themselves when removing the backing paper and fit well to the plate during application. Sterile product is packaged in tamper evident bags of 25/bag.

- Recommended for temperatures from –80 to +120 °C
- Easily pierceable with pipette tips and robotic probes
- Excellent vapour barrier, virtually no sample evaporation
- Certified free from DNase, RNase and nuclease

Each foil L×D: 142,9×82,6 mm with sufficient sealing area for all PCR plates.

Length with end-tabs removed: 125,4 mm.

Description	Pk	Cat. No.
Aluminium foils, non sterile	100	**391-1256**
Aluminium foils, sterile	50	**391-1257**

Sealing film and sealing mats for PCR plates

732-0588

732-0589

732-0590

Designed to reduce evaporation when cycling 96-well plates.

Sealing film: PP, sterile, has an adhesive backing that adheres to most PCR plates and an operating temperature –40 to +125 °C.

Transparent silicone mats: Fit most brands of 96-well PCR plates, and can be cleaned and reused. Autoclavable at 121 °C.

Description	Pk	Cat. No.
Sealing film, PP, sterile	100	**732-0588**
Sealing mat, silicone, round wells	5	**732-0589**
Sealing mat, silicone, square wells	5	**732-0590**

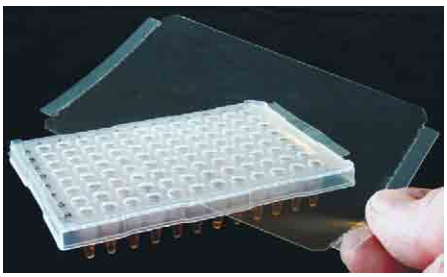
Sealing films for qPCR, storage and crystallisation, ThermalSeal RTS™

50 µm polyolefin films with 50 µm inert encapsulated silicone adhesive. Especially suited for Real-Time qPCR, storage, and protein crystallisation applications. The encapsulated silicone adhesive is non tacky until pressed against the sealing surface, at which time adhesive is released only in sealing areas to form the strongest available heat resistant seal around each well on the plate.

- High optical clarity, minimal to no autofluorescence
- Chemically inert; no extractables except at extreme pH; DMSO resistant for HTS
- Heat resistant, recommended for temperatures from –70 to +100 °C
- Certified DNase, RNase, and nucleic acid-free

Sized to fit within the edges of raised-rim 96-well plates (76,2×133,4 mm). Two end tabs assist in positioning the film on the plate

Description	Pk	Cat. No.
ThermaSeal RTS, non sterile	100	**391-0189**



Ultra clear films for qPCR

Polyester

Transparent polyester films with strong, non absorbing, non fluorescing medical grade adhesive for superior performance in qPCR applications. Supplied non sterile.

- Recommended for temperatures from –40 to +120 °C
- Ultra-high optical clarity
- Certified free from DNase, RNase and nuclease

Each film L×D: 142,9×79,4 mm.

Length with end-tabs removed: 121,9 mm.

Description	Pk	Cat. No.
Optically clear 50 µm thick films	100	**391-1258**
Optically clear 50 µm thick films for raised rim plates	100	**391-1295**

Aluminium foil seals for PCR and storage (96-well plates)

Aluminium foils, 38 µm thick, for use with 96-well plates. Fit inside the rim of raised rim plates. These foils have one partial-width end tab with no perforation. Available non sterile only.

- Recommended for temperatures from –40 to +150 °C
- Certified free from DNase, RNase and nucleic acids

Each foil L×D: 127,0×77,8 mm, including single 9,5 mm end tab.

Description	Pk	Cat. No.
Aluminium foils for 96-well plates, non sterile	100	**391-1282**

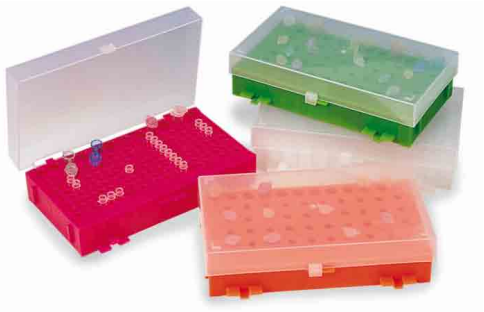
PCR racks, reversible

PP, with lid

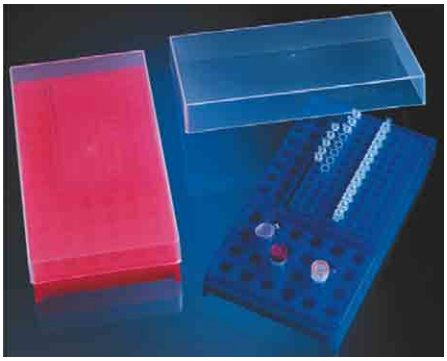
Designed to hold 0,2, 0,5, or 1,5 ml tubes.

- PCR side of the rack has 168 wells that can hold 8-well or 12-well tube strips or one 0,2 ml tube per well
- Opposite side of the rack has 40 wells that can hold 0,5 ml tubes
- Both sides of the rack have 12 wells that can hold 1,5 ml tubes
- Simple to use, removable hinged lid snaps in place on either side of the rack

Ordering information: Assorted pack includes one each of blue, green, purple, yellow and orange.



Description	Colour	Pk	Cat. No.
PCR rack	Assorted	5	**211-0198**



PCR workstation

PP, with clear lid

Ideal for preparing samples for cycling or working with completed procedures.

- Separate removable 96-well rack holds a plate, 0,2 ml tubes or 0,2 ml tube strips
- Additional wells on the workstation accommodate 0,5 ml, 1,5 ml or 2,0 ml tubes
- Autoclavable and freezable

Description	Pk	Cat. No.
PCR workstation	5	**732-0810**

VWR® PCR Workstation

VWR INTRODUCES THE NEW LABORATORY STANDARD

The brand new VWR PCR Workstation is designed as an ideal environment for the manipulation of DNA and RNA, especially for the setup of PCR assays. Contaminations can lead to false or misleading results which costs time and money.
The VWR PCR Workstation minimizes the risk of contamination. It provides a 'separated room', e.g. for the setup of PCR reactions. The high intensity surface UV tubes inactivate DNA as a source of contamination between experiments. In addition, an UV Air Recirculator is integrated into the workstation system which reduces airborne microbes and contaminants during experiments. UV light is effectively blocked by solid polycarbonate screens to ensure maximum protection of the user.
The inner surfaces of the workstation are made of stainless steel, which is very robust, can easily be cleaned and has an antimicrobial effect.
The VWR PCR Workstation offers a controlled environment for PCR and RNA applications that protects your precious samples and helps to achieve optimal results.

- 2 powerful 25 W 254 nm UV-tubes for efficient surface decontamination before or after experiments
- Programmable timer for automated execution of daily decontamination routines
- UV air recirculator for continuous air decontamination during work
- Stainless steel surfaces: easy to clean, antimicrobial, long lasting
- Large front door allows easy and convenient access of work space
- Ethanol resistant, very robust Makrolon® screens for full protection from UV light
- overflow protection: spilled chemicals can't run out of the workstation
- Counter of UV runtime for timely exchange of UV tubes to maintain constant intensity
- Very easy assembly and installation

Technical data	
Timer UV light:	5 -30 min, progammable for daily routines
Front and side panels:	8 mm Makrolon® protects from UV irradiation
Housing, surface:	Stainless steel
Work area:	720 x 540 mm (L xD)
Outer dimensions:	750 x 780 x 620 mm (L x H x D)

Description	Cat. No.
PCR workstation with UV air recirculator	732-2541
PCR workstation with UV air recirculator, UK version	732-2542

Not available in Germany and Austria

The large working area, removable shelves and 4 power outlets provide ample space for comfortable operation and allow the combination of several working steps protected from contamination.

PCR Workstation

Housing in stainless steel, front and side panels made of 8 mm Makrolon® protects from UV irradiation

The VWR® PCR Workstation offers twin decontamination action by UV inactivation of airborne and surface-bound contaminants and therefore represents an ideal environment for PCR sample preparation and other sensitive protocols.

Large working area for stress free working: Providing ample space and the possibility to accommodate benchtop equipment, the VWR® PCR Workstation allows the combination of several working steps without change of location, thereby also minimising the risk of cross contamination.

- Active decontamination of work surface during non-working time by UV irradiation
- Additional inactivation of aerosol-bound contaminants by shielded UV Air Recirculator during operation
- Contaminant prevention thanks to antimicrobial work surface made of stainless steel
- Function indicator for UV Air Recirculator tube
- Displays operating time of UV tubes to enable well-timed replacement of tubes for constant UV intensity
- Removable shelves provide additional storage space for reaction tubes, pipettes or racks at the rear panel
- 4 internal power outlets for operating lab equipment such as mini centrifuges or vortexers allow the combination of several working steps without interruption of the workflow
- Electromagnetic safety mechanism stops UV irradiation if front panel is opened

TÜV-tested, certified safety ; made in Germany.

Model	PCR Workstation
Lighting	2 UV tubes internal (254 nm, 25 W each) 1 UV tube in UV Air Recirculator (254 nm, 8 W) 1 white light tube internal (15 W)
Shelves	removable
Weight (kg)	48

Description	W×D×H ext. (mm)	Pk	Cat. No.
VWR® PCR Workstation, worksurface (W×D): 720×540 mm, EU-plug	750×620×780	1	**732-2541**
VWR® PCR Workstation, worksurface (W×D): 720×540 mm, UK-plug	750×620×780	1	**732-2542**

Description	Pk	Cat. No.
Accessories		
Light source, interior, white light, 15 W	1	**732-2543**
Light source, interior, UV light (254 nm), 15 W	2	**732-2544**
Light source, air recirculator, UV light (254 nm), 8 W	1	**732-2545**
Dust filter for air recirculator	10	**732-2546**

UNO96/Doppio

Thermal cyclers

The VWR® thermal cycler family combines high quality engineering with a comprehensive range of block formats. The UNO cycler is designed around a powerful yet easy to use software interface and uses the same platform for both 96-well and 384-well formats.
The Doppio, with two independent high speed 48-well blocks in one system, offers the optimal solution for maximum flexibility within minimal footprint.
The Ristretto is a compact personal cycler with the highest flexibility, having a universal block that can be loaded with up to either 32×0,2 ml tubes or 16×0,5 ml tubes with flat caps. Because of the special design of the heated-lid the height adjusts automatically to the different tube size.

- Outstanding performance: Thermal plate with impressive thermal characteristics; powerful Peltier elements with Long Life Technology; heat sink with cooling fans with magnetic bearing enabling rapid temperature change control of up to 5 °C/s
- Reliable reproducible results: 8, 2×8 or16 Peltier elements control the temperature row by row, enabling an outstanding block homogeneity of ± 0,2 °C and the choice of absolute linear gradients and independent lane control
- German quality manufacturing: Engineered and manufactured in Germany according to ISO 9001, calibrated and maintained according to NIST standards and backed with more than 20 years of cycler expertise and experience
- Simple to use: Sharp, clear TFT display and intuitive 'press screen' commands
- Data control: Up to 4× USB, 1× Ethernet (MS Windows®, Linux), remote control and monitoring of instruments via PC software, MP3 signal tones, user calls via e-mail and master/slave control

All systems include simple to use PC software for remote control and monitoring of instruments, plus creating PCR protocols on the PC.

- FlexGradient technology (UNO and Doppio only): With the temperature of the 8 rows each individually controlled, select between a perfectly linear temperature gradient (ideal for PCR optimisation), or independent lane control (ideal for the use of different primer pairs in the same run)
- System tools at the touch of a button: Graphical or tabular programming, 'Global Program Ramp', 'Gradient Control', 'Tube Control', Emulation mode, Online help, 'Quickstart' function and 'Power Fail Denaturation' for auto-restart after power failure
- High specification remote control: State of the art technology, with VWR 'PCR Cycler Master Software'; receive notifications via email or use the system MP3 player
- Emulation mode (UNO and Doppio only): For easy transfer of PCR protocols

Engineered and manufactured in Germany according to ISO 9001, calibrated and maintained according to NIST standards and backed with more than 20 years of cycler expertise and experience.

Ristretto

Model	UNO96	UNO96G	UNO384	Doppio	Doppio Gradient	Ristretto
Block accuracy (°C)	±0,1					
Block homogeneity (°C)	±0,2 at 72 °C					
Display	Touch sensitive TFT display (800×480 px, 16:9, 65536 colours)					
Gradient temperature range (°C)	-	+35...105	-		+35...105	-
Heating and cooling rate (°C/sec)	Max. 5					Max. 3
Interfaces	4× USB, 1× Ethernet (MS Windows®, Linux)					1× USB, 1× Ethernet (MS Windows®, Linux)
Lid temperature range (°C)	+40...120 °C					
Programs	Unlimited number of programs via network PC or USB memory sticks: internal memory for 500,000 typical PCR protocols					
Temperature range (°C)	+4...105					

Description	Pk	Cat. No.
Thermal cycler, UNO96, with 96 well universal block and standard lid for 96×0,2 ml tubes, 96-well PCR plates or 48×0,5 ml tubes with flat caps	1	**732-2548**
Gradient thermal cycler, UNO96G, with 96-well universal gradient block and standard lid for 96×0,2 ml tubes, 96-well PCR plates or 48×0,5 ml tubes with flat caps	1	**732-2549**
Thermal cycler, UNO384, with 384-well block and high pressure lid for 384-well PCR plates	1	**732-2550**
Thermal cycler, Doppio, with 2×48 well universal blocks and standard lids for 48×0,2 ml tubes or 24×0,5 ml tubes with flat caps per block	1	**732-2551**
Gradient thermal cycler, Doppio Gradient, with 2×48 well universal gradient blocks and standard lids for 48×0,2 ml tubes or 24×0,5 ml tubes with flat caps per block	1	**732-2552**
Thermal cycler, Ristretto, with 32-well universal block and standard lid, for 32×0,2 ml tubes or 16×0,5 ml tubes with flat caps	1	**732-2553**

Description	Pk	Cat. No.
Software for gradient upgrade		
Gradient upgrade for UNO96 thermocycler	1	**732-2554**
Gradient upgrade for Doppio thermocycler	1	**732-2555**

Thermoshaker, Thermal Shake Touch

The Thermal Shake Touch is designed for applications that require consistent and precise results. With heating and shaking capabilities, the low profile unit uses interchangeable blocks to accommodate a wide variety of tubes and microplates. The LCD touch screen enables faster setting of temperature, speed and time, which can all be viewed at once. Display features on-screen help topics with operational tips. Touch screen is compatible with rubber gloves used in labs. Program control capabilities allow user-programmable operation for automated use and memory for five separate, 5-step programs. Adjustable temperature ramp rate feature separately defines the heating and cooling rates in increments of 0,5 °C/min. Single point calibration mode for maximum temperature accuracy, the single point calibration procedure allows the user to calibrate up to 6 different defined temperatures. Constructed from a high quality heat and chemically resistant polymer so the housing remains cool to the touch throughout normal operating temperatures. Maximum temperature limiting function ensures the temperature will not exceed user-defined limits allowing control of temperature-sensitive samples. A hot top warning illuminates when the temperature reaches 40 °C and remains on until the unit is cooled below 40 °C. The unit's enhanced electronics and temperature sensor provide accurate, dependable temperature settings across the operating range from 5 to 35 °C, (maximum 80% relative humidity, non-condensing). Applications include cell cultures, DNA, RNA, and protein studies.

- Easy to use 109 mm colour LCD touch screen allows the user to save and visibly track progress through the live status bar for five user-defined programs, each with five individual steps
- Suitable for rapid heating, cooling and high speed shaking and a pulse mode feature, ideal for quick vortex applications
- Timer with audible alarm, 1 min to 99 h, 59 min, heat function will automatically shut off if the unit recognises an internal issue
- USB port can transfer information to a flash drive for data logging, programme storage and software updates

Delivery information: Supplied with 1,5 ml block (460-0210), a rack and a cover, additional blocks must be ordered separately. Note that Eppendorf Thermomixer R® blocks are compatible with the VWR Thermal Shake Touch. Model with NIST traceable certificate is also available, this includes a 3 point NIST traceable calibration. The traceable certificate includes actual calibration measurement data and uncertainty. The calibration laboratory is ISO/IEC 17025 compliant.

Model	Thermal Shake Touch
Heating speed (°C/min)	5
Orbit (mm)	3
Speed accuracy (%)	±2
Speed range (min^{-1})	300 - 3000
Temperature accuracy (°C)	±1 (between 20 and 45 °C) ±2 (above 45 °C)
Temperature control range (°C)	RT* +4...100
Weight (kg)	4,6
W×D×H (mm)	248×260×132

Description	Pk	Cat. No.
Thermal Shake Touch, EU-plug	1	460-0202
Thermal Shake Touch, NIST certificate, EU-plug	1	460-0203
Thermal Shake Touch, UK-plug	1	460-0204
Thermal Shake Touch, NIST certificate, UK-plug	1	460-0205
Thermal Shake Touch, CH-plug	1	460-0206
Thermal Shake Touch, NIST certificate, CH-plug	1	460-0207

Description	Well size (mm)	For	No. of holes	Depth (mm)	Pk	Cat. No.
Interchangeable blocks for Thermal Shake Touch and Cooling Thermal Shake Touch						
Interchangeable thermal microplate block with lid	129×86	1×96 well microplate	1	25	1	460-0208
Interchangeable tube block	Ø 7,9	30×0,5 ml tubes**	30	25,7	1	460-0209
Interchangeable tube block	Ø 11,1	24×1,5 ml tubes**	24	33,5	1	460-0210
Interchangeable tube block	Ø 11,5	24×2,0 ml tubes**	24	33,5	1	460-0211
Interchangeable tube block	Ø 12,0	24×5 - 7 ml tubes	24	34,3	1	460-0212
Interchangeable tube block	Ø 12,6	24×2,0 ml cryo tubes	24	34,0	1	460-0213
Interchangeable tube block	Ø 17,3	9×15 ml conical tubes	9	102	1	460-0214
Interchangeable tube block	Ø 30,0	4×50 ml conical tubes	4	98,8	1	460-0215

*RT = Ambient
** Microtube blocks include a removable rack and cover.

Thermoshaker, Mini shake lite

The combination of heating/cooling and shaking makes the Mini shake lite microtube shaking incubator ideal for many life science research applications in molecular biology, biochemistry and clinical chemistry. Its compact footprint incorporates an intuitive control panel with large multicolour display, allowing users to easily program and view temperature, time and speed settings.

- Choice of eight interchangeable aluminium blocks accommodate PCR plates and tubes ranging from 0,2 – 15 ml
- Fine tune speed control
- Rapid heating and cooling
- Compact footprint

Ordering information: Supplied without blocks, blocks must be ordered separately.

Model	Mini shake lite
Heating speed (°C/min)	6,5
Orbit (mm)	3
Speed range (min^{-1})	300 - 1500
Temperature accuracy (°C)	±0,5
Temperature control range (°C)	14 below ambient to 100
Weight (kg)	8,5
W×D×H (mm)	330×166×240 mm

Description	Pk	Cat. No.
Mini shake lite	1	**460-0249**

Description	For	Pk	Cat. No.
Accessories			
Aluminium block	1,5 ml tubes	1	**460-0250**
Aluminium block	0,5 ml tubes	1	**460-0251**
Aluminium block	0,2 ml PCR tubes or plates	1	**460-0252**
Aluminium block	15 ml tubes	1	**460-0253**
Aluminium block	Water bath block (115×73×38 mm)	1	**460-0254**
Aluminium block	0,5 and 1,5 ml tubes	1	**460-0255**
Aluminium block	2,0 ml tubes	1	**460-0256**
Aluminium block	96-well ELISA plate	1	**460-0257**

VWR
We Enable Science

Austria
VWR International GmbH
Graumanngasse 7
1150 Vienna
Tel.: +43 1 97 002 0
Fax: +43 1 97 002 600
Email: info@at.vwr.com

Belgium
VWR International bvba
Researchpark Haasrode 2020
Geldenaaksebaan 464
3001 Leuven
Tel.: 016 385 011
Fax: 016 385 385
Email: vwrbe@be.vwr.com

Czech Republic
VWR International s. r. o.
Veetee Business Park
Pražská 442
CZ - 281 67 Stříbrná Skalice
Tel.: +420 321 570 321
Fax: +420 321 570 320
Email: info@cz.vwr.com

Denmark
VWR - Bie & Berntsen
Transformervej 8
2860 Søborg
Tel.: 43 86 87 88
Fax: 43 86 87 90
Email: info@dk.vwr.com

Finland
VWR International Oy
Valimotie 9
00380 Helsinki
Tel.: 09 80 45 51
Fax: 09 80 45 52 00
Email: info@fi.vwr.com

France
VWR International S.A.S.
Le Périgares – Bâtiment B
201, rue Carnot
94126 Fontenay-sous-Bois cedex
Tel.: 0 825 02 30 30 (0,15 € TTC/min)
Fax: 0 825 02 30 35 (0,15 € TTC/min)
Email: info@fr.vwr.com

Germany
VWR International GmbH
Hilpertstraße 20a
D - 64295 Darmstadt
Freecall: 0800 702 00 07
Fax: 0180 570 22 22*
Email: info@de.vwr.com
*0,14 €/Min. aus d. dt. Festnetz

Hungary
VWR International Kft.
Simon László u. 4.
4034 Debrecen
Tel.: (52) 521-130
Fax: (52) 470-069
Email: info@hu.vwr.com

Ireland / Northern Ireland
VWR International Ltd /
VWR International (Northern Ireland) Ltd
Orion Business Campus
Northwest Business Park
Ballycoolin
Dublin 15
Tel.: 01 88 22 222
Fax: 01 88 22 333
Email: sales@ie.vwr.com

Italy
VWR International PBI S.r.l.
Via San Giusto 85
20153 Milano (MI)
Tel.: 02-3320311/02-487791
Fax: 800 152999/02-40090010
Email: info@it.vwr.com

The Netherlands
VWR International B.V.
Postbus 8198
1005 AD Amsterdam
Tel.: 020 4808 400
Fax: 020 4808 480
Email: info@nl.vwr.com

Norway
VWR International AS
Haavard Martinsens vei 30
0978 Oslo
Tel.: 02290
Fax: 815 00 940
Email: info@no.vwr.com

Poland
VWR International Sp. z o.o.
Limbowa 5
80-175 Gdansk
Tel.: 058 32 38 200 do 204
Fax. 058 32 38 205
Email: info@pl.vwr.com

Portugal
VWR International -
Material de Laboratório, Lda
Edifício Neopark
Av. Tomás Ribeiro, 43- 3 D
2790-221 Carnaxide
Tel.: 21 3600 770
Fax: 21 3600 798/9
Email: info@pt.vwr.com

Spain
VWR International Eurolab S.L.
C/ Tecnología 5-17
A-7 Llinars Park
08450 - Llinars del Vallès
Barcelona
Tel.: 902 222 897
Fax: 902 430 657
Email: info@es.vwr.com

Sweden
VWR International AB
Fagerstagatan 18a
163 94 Stockholm
Tel.: 08 621 34 00
Fax: 08 621 34 66
Email: kundservice@se.vwr.com

Switzerland
VWR International GmbH
Lerzenstrasse 16/18
8953 Dietikon
Tel.: 044 745 13 13
Fax: 044 745 13 10
Email: info@ch.vwr.com

Turkey
VWR International Laboratuar
Teknolojileri Ltd.Şti.
Orta Mah. Cemal Gürsel
Caddesi
Ördekcioglu Işmerkezi No.32/1
34896 Pendik - Istanbul
Tel.: +90216 598 2900
Fax: +90216 598 2907
Email: info@pro-lab.com.tr

UK
VWR International Ltd
Customer Service Centre
Hunter Boulevard - Magna Park
Lutterworth
Leicestershire
LE17 4XN
Tel.: 0800 22 33 44
Fax: 01455 55 85 86
Email: uksales@uk.vwr.com

Australia
VWR International, Pty Ltd.
Level 1, Unit 1a/60 Enterprise Place
Tingalpa, Queensland 4173
Tel.: 1300 727 696
Fax: 1300 135 123

China
VWR International China Co. Ltd.
Shanghai Branch
Room 256, No. 3058 Pusan Road
Pudong New District
Shanghai 200123, China
Tel.:+86-21-5898 6888
Fax:+86-21-5855 8801
Email: info_china@vwr.com

India
VWR Lab Products Private Limited
135/12, Brigade Towers, 2nd Floor
Front wing, Brigade Road,
Bengaluru, India – 560 025
Tel.: +91-80-41117125/26 (Bengaluru)
Tel.: +91-2522-647911/922 (Mumbai)
Fax: +91-80-41117120
Email: vwr_india@vwr.com

New Zealand
Global Science - A VWR Company
241 Bush Road
Albany 0632, Auckland
Tel.: 0800 734 100
Fax: 0800 999 002
Email: sales@globalscience.co.nz

Singapore
VWR Singapore Pte Ltd
18 Gul Drive
Singapore 629468
Tel.: +65 6505 0760
Fax: +65 6264 3780
Email: sales@sg.vwr.com

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