## PCR \& Molecular Biology

Certified Products for Applications in PCR,
Molecular Biology \& Research


Liquid Handling


In the field of PCR and molecular biology, the demands on all working materials and
consumables are particularly high. It is only possible to achieve valuable, reproducible results if the precision and reliability of all materials is ensured.
Our PCR and liquid handling products are produced under strictly regulated conditions to provide you with the guarantees that you need in research and development, offering flexible solutions for all fields of application.
On the following pages we provide an overview of our PCR and molecular biology range so you can find the right tools and solutions for your requirements.

Your Sarstedt Jeam

SARSTEDT

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Cleanroom conditions, skilled personnel in protective clothing as well as automated processes form the basic prerequisites for award of the certified Sarstedt quality standards, PCR Performance Tested and Biosphere ${ }^{\oplus}$ plus.

Since 1995, we have provided our customers with a product quality tailored to their specific applications to ensure utmost reproducibility in their analyses. Our certification standards are continually adjusted to keep up with the state of research so that we can provide you with the required level of purity in your routine work at all times.

## PCR

Performance Tested
DNA-/ DNase-/ RNase-/ PCR inhibitor-free
co

PCR Performance Tested Quality • The Sarstedt quality and purity standard
PCR Performance Tested is tailored to accommodate the specific requirements and needs involved in working with nucleic acids (e.g. GPCR, PCR, purification and storage). Thanks to this quality grade, customers can use Sarstedt disposables directly in nucleic acid analytics with confidence.

PCR Performance Tested products meet the following purity criteria, which are certified by an independent laboratory:
$\checkmark$ DNA-free $\quad \checkmark$ DNase/RNase-free $\quad \checkmark$ PCR inhibitor-free
We guarantee that the following limit values are not exceeded:
Human DNA $<0.5 \mathrm{pg} / \mu \mathrm{l} \cdot$ Bacterial DNA $<0.02 \mathrm{pg} / \mu \mathrm{l} \cdot$ DNase $<1 \times 10^{-5} \mathrm{U} / \mu$ RNase $<1 \times 10^{-9}$ Kunitz units/ $\mu \mathrm{l}$

## Biosphere ${ }^{\oplus}$ plus quality • Unrivalled purity

Scientific analysis methods have been continuously refined to the point where it is now even possible to identify individual molecules.
As sensitivity increases, disposables are required to meet significantly more exacting requirements so that users can be certain that even the smallest contamination will be reliably excluded.
The Biosphere ${ }^{\text {e }}$ pl
The Biosphere ${ }^{\oplus}$ plus quality constitutes a purity standard that enables utmost protection against any possible contamination
adaition to our high-purity production conditions, all products certified Biosphere ${ }^{\oplus}$ plus are subjected to a validated decontamination process to ensure that the relevant values are significantly lower than the thresholds guaranteed for the PCR Performance Tested quality. Biosphere ${ }^{\oplus}$ plus products are also ATP-free and non-pyrogenic endotoxin-free, and are sterile in accordance with ISO 11135.
Biosphere ${ }^{\circledR}$ plus products meet the following purity criteria, which are certified by an independent laboratory:
$\checkmark$ Sterile $\checkmark$ DNA-free $\checkmark$ DNase/RNase-free
$\checkmark$ PCR inhibitor-free $\checkmark$ ATP-free $\checkmark$ Non-pyrogenic/endotoxin-free
We guarantee that the following limit values are not exceeded:
Human DNA $<5.0 \mathrm{fg} / \mu \mathrm{l}$ • Bacterial DNA $<0.2 \mathrm{fg} / \mu \mathrm{l} \cdot$ DNase $<5 \times 10^{-7} \mathrm{U} / \mu$ RNase < $5 \times 10^{-1}$ Kunitz units/ $/ \mathrm{ll} \cdot$ ATP $<1 \times 10^{-12} \mathrm{mmol} / \mathrm{\mu l} \cdot$ Pyrogens $<0.002 \mathrm{EU} / \mathrm{ml}$ Sterility validated in accordance with ISO 11135

Calibrated system: pipettes and pipette tips
The accuracy of the pipetting process depends to a large extent on the perfect coordination of pipette and pipette tip.

- As one of the leading manufacturers of pipette tips for decades, Sarstedt aims to provide its customers with reliable quality tips to fit the key pipette brands.
- The quality of a pipette tip is defined by the properties of the material used (e.g. chemical resistance), its design (e.g. graduation rings, reduced aerosol formation), and by accuracy of fit with the corresponding pipette

Our quality guarantee: Conformity testing in accordance with the international test standard ISO 8655-2 The trend to ever smaller sample volumes leads to increasingly higher requirements on the consumables. To guarantee you maximum precision and reliability even with very small volumes, Sarstedt tips are regularly checked in combination with the pipettes of market-leading manufacturers. They undergo comprehensive conformity testing under a specified process, according to the international ISO 8655-2 standard for piston pipettes. We guarantee that our pipette tips form a system with the piston pipettes listed from the specified manufacturers, that does not exceed the accuracy and precision tolerances of ISO 8655-2.

Conformity testing in accordance with the international test standard ISO 8655-2

- The declaration of conformity for piston pipettes indicates which combination of pipette and pipette tip it applies to, and serves as a guarantee of precision and reliability.
- Look for the logo below to determine whether there is a standard declaration of conformity available for the pipette/pipette tip combination in question.


## DE-M

Prevention of contamination and carryover
Even the most careful pipetting may generate aerosols that can make their way into the pipette and contaminate it. The highly sensitive PCR method, like microbiological and radioactive pipetting procedures, cannot tolerate contamination of the pipette. To eliminate the problem of aerosol contamination and the associated consequences (erroneous results, additional work and extra costs), pipette tips are used which incorporate special porous filter elements.


Reliable protection with selected filter materials
The filter elements positioned in the pipette tips consist of a porous synthetic material that has particular hydrophobic properties and no self-sealing additives.

- The sponge-like material is densely composed of randomly arranged channels (see image at left) which allow air to pass through as necessary to enable the required precision when using piston pipettes.
- The complex structure of the porous filter effectively prevents aerosols from entering the pipette shaft.


## Cross-section of a porous filter element

 (40x magnification)

Measuring the effectiveness of filter inserts in Biosphere® plus filter tips* PCR and indirect radioactive measurement of plasmid DNA using P-32-labelled ATP are two conclusive methods for measuring any cross-contamination of pipettes by DNA aerosols that may occur during use.

- With both methods hydrophobic filter inserts used in Sarstedt Biosphere ${ }^{\text {® }}$ plus pipette tips in conjunction with the selected porosity were proven to provide the required leve of protection against aerosol contamination.
-The high degree of effectiveness of the filters in Biosphere ${ }^{\oplus}$ plus filter tips is achieved through a complex interplay between absorption, surface quality, thickness, rigidity and

Further details can be found in our application report 'Shielding effect of filter inserts in pipette tips

Additional protection with Biosphere ${ }^{\circledR}$ plus purity standard

- Maximum biological purity thanks to our controlled manufacturing process:
free of DNA, DNase, RNase, PCR inhibitors, ATP and pyrogens

- Batch-specific certificates available


## Convenient and protective packaging of individual tip boxes

- Each tip box is aseptically packaged in a special sterile bag in order to ensure additional protection.
- The bags can be easily opened by tearing at the grooved edge (see image).


Tailored tip solutions for every application
The use of micro-volumes in modern laboratory practice means that dosing systems consisting of a pipette and pipette tip are subject to extremely stringent requirements.
This is why Sarstedt pipette tips feature the following quality characteristics:

- Greater pipette reliability thanks to conformance testing in accordance with ISO 8655-2
- Easier volume control - calibration rings make it easier to see how much liquid is in the tip
- Improved dosing - thin extended tips enable visual monitoring of the volume
- Colour-coded trays enable easy identification of tip volume
- Visual pipetting control due to highly transparent tip materia

Filter tip • 0.1-10 $\mu \mathrm{l} / 0.1-2.5 \mu \mathrm{l}$
DE-M


Filter tip • 0.1-20 $\mu$ l
DE-M
70.1114.210

- Ergonomically designed and flexible tip cone
- Fits perfectly onto single and multi-channel pipettes
- 46 mm tip length makes it easier to pipette reliably into the bottom of tubes
- Calibration rings at $2 \mu \mathrm{l}, 10 \mu \mathrm{l}$ and $20 \mu \mathrm{l}$
- Improved dosing of small volumes thanks to narrow, extended tip
- Conformity tested in accordance with ISO 8655-2
- Colour code


Filter tip • 2 - $100 \mu \mathrm{l}$

- 51 mm long universal tip
- Two filter position options limit the volume to $20 \mu \mathrm{l}$ or $100 \mu \mathrm{l}$ and reduces aerosol formation
- Conformity tested in accordance with ISO 8655-2
- Colour code

- 51 mm-long universal tip for all volumes up to 200
- Conformity tested in accordance with ISO 8655-2
- Colour code


Filter tip • 10-300 $\mu$ DE-M

- 56 mm -long tip, specially designed for multi-channel pipettes
- Calibration rings at $50 \mu \mathrm{l}, 100 \mu \mathrm{l}, 200 \mu \mathrm{l}$ and $300 \mu \mathrm{l}$
- Conformity tested in accordance with ISO 8655-2
- Colour code


Gelloader pipette tip • 1-200 $\mu$ l
70.1190 .100

- 66 mm long, finely drawn-out capillary
- Easy to fill agarose or SDS gels
- Compatible with the most common pipettes


## Filter tip • 1-200 $\mu$ l

70.1189.215

Extra long and slim $200 \mu \mathrm{l}$ tip
Soft, flexible cone for easy attachment and simple disposal

- 77 mm-length for use with tubes
- Calibration rings at $10 \mu \mathrm{l}, 50 \mu \mathrm{l}, 100 \mu \mathrm{l}$ and $200 \mu \mathrm{l}$
- Colour code


Filter tip • 50-1,000 $\mu \mathrm{l}$

- 72 mm tip for volumes up to 1 m
- Calibration rings at $100 \mu, 500 \mu$ and $1,000 \mu$
- Conformity tested against ISO 8655-2
- Colour code


Filter tip • $50-1,250 \mu$ l, extra long

- Extra slim 103 mm-long tip
-Ideally suited to pipetting into the Deep Well MegaBlock ${ }^{\circledR}, 5 \mathrm{ml}$ CryoPure tubes and other tall, thin vessels
- Calibration rings at $200 \mu, 500 \mu$ and $1,000 \mu$
- Colour code


$200 \mu \mathrm{l}$ pipette tips from different suppliers were used with an electronic pipette at constant


Ordering information - Low retention pipette tips with filter in Biosphere ${ }^{\oplus}$ plus quality

| (Illustrations: actual size) | Tray colour code | Order no. | Volume | Purity Grade | Packaging |
| :---: | :---: | :---: | :---: | :---: | :---: |
|  | Type E | 70.1130.217 | $2.5 \mu$ |  | 96/box, 480/inner case 1,920/case |
| 3 | Type E | 70.1130.215 | $10 \mu$ |  | 96/box, <br> 480/inner case 1,920/case |
|  | Type N | 70.1114.215 | $20 \mu$ |  | 96/box, <br> 480/inner case 1,920/case |
|  |  | 70.1116.215 | $20 \mu$ |  | 96/box, <br> 480/inner case 1,920/case |
| - | Type A | 70.760.219 | $20 \mu$ |  | 96/box, 480/inner case 1,920/case |
|  | Type A | 70.760.217 | $100 \mu$ |  | $\begin{gathered} \text { 96/box, } \\ \text { 480/inner case, } \\ \text { 1,920/case } \end{gathered}$ |
|  | Type C | 70.760.216 | $200 \mu$ |  | 96/box, 480/inner case 1,920/case |
|  | Type L | 70.765.215 | $300 \mu$ |  | $\begin{gathered} \text { 96/box, } \\ \text { 480/inner case, } \\ \text { 1,920/case } \end{gathered}$ |
|  | Type B | 70.762.216 | 1,000 $\mu$ |  | 100/box, 500/inner case 1,000/case |

Ordering information - Low retention pipette tips without filter

| Product | Tray colour code | Order no. | Volume | Packaging |
| :---: | :---: | :---: | :---: | :---: |
| = |  | 70.1130.105 | $10 \mu$ | $\begin{aligned} & \text { 96/box, } \\ & \text { 1,920/case } \end{aligned}$ |
|  |  | 70.1114.105 | $20 \mu$ | $\begin{aligned} & \text { 96/box, } \\ & \text { 1,920/case } \end{aligned}$ |
|  |  | 70.1116.105 | $20 \mu$ | $\begin{aligned} & \text { 96/box, } \\ & \text { 1,920/case } \end{aligned}$ |
|  |  | 70.760.107 | $200 \mu$ | $\begin{aligned} & \text { 96/box, } \\ & \text { 1,920/case } \end{aligned}$ |
|  |  | 70.765.105 | $300 \mu$ | $\begin{aligned} & \text { 96/box, } \\ & \text { 1,920/case } \end{aligned}$ |
|  | Type B | 70.762.105 | 1,000 $\mu$ | $\begin{aligned} & \text { 100/box, } \\ & \text { 1,000/case } \end{aligned}$ |

Tip SystemBox - the central pipetting station


Tip SystemBox
The autoclavable Tip SystemBox is the central workstation for all 96 -tip Sarstedt trays, Complete with hinged lid and anti-slip base, the Tip SystemBox readily accomodates reload trays.

| Order no. | Design | Packaging <br> Pcs./case |
| :---: | :---: | :---: |
| 95.1298.001 | Empty Tip SystemBox (without pipette tips) | 6 |

With the Tip StackPack reload system, you need never manually rack tips again
Tips are preloaded in reusable trays of 96 that are stacked, reducing packaging waste and storage space by over 50\%.

- Economical and environmentally friendly
- Space-saving and compact
- Easy to use
- Reduction in waste volume
- Easy transfer of individual layers of 96 tips to the Tip SystemBox for autoclaving and easy handling
- Simply break the perforated safety labels on both sides to access the next layer
- No need for alignment aids when inserting a layer of 96 tips in the Tip SystemBox
- Tips can also be used directly from the stack
- Certified option available in PCR Performance Tested quality

| Order no. | Volume | Purity Grade | Packaging |
| :---: | :---: | :---: | :---: |
| 70.1130 .600 | $10 \mu$ |  | 576/StackPack, 2,304/case |
| 70.1130.460 | $10 \mu$ | CRO | 576/StackPack, 2,304/case |
| 70.760.502 | $200 \mu \mathrm{l}$ |  | 480/StackPack, 1,920/case |
| 70.760.452 | $200 \mu$ |  | 480/StackPack, 1,920/case |
| 70.760.501 | $250 \mu \mathrm{l}$ |  | 480/StackPack, 1,920/case |
| 70.760.451 | 250 - | $5$ | 480/StackPack, 1,920/case |

Empty reloading trays for use in the Tip SystemBox
Empty trays for 10 to $300 \mu \mathrm{l}$ tips can easily be used in the Tip SystemBox and filled with bulk tips.

Ordering information for empty reload trays - coloured trays for identification of tip volumes

| Order no. | Tray colour code | Tip type/volume | Packaging <br> Pcs./case |
| :---: | :---: | :---: | :---: |
| 95.1760 .011 | A, C/200 $\mu \mathrm{l}$ | 25 |  |
| 95.1760 .022 | $\mathrm{~J}, \mathrm{~N} / 20 \mu \mathrm{l}$ | 25 |  |
| 95.1760 .034 | $\mathrm{E} / 10 \mu \mathrm{l}$ | 25 |  |
| 95.1760 .044 | $\mathrm{~L} / 300 \mu \mathrm{l}$ | 20 |  |

Ordering information for quality pipette tips without filter





Sarstedt Multiply ${ }^{\oplus}$ PCR tubes are designed differently than traditional micro tubes.
Multiply ${ }^{\oplus}$ tubes are engineered for easy use and to reduce contamination risks.

Integrated contamination protection:
Can be opened without touching the inside of the lid

- Easy and safe to open
- Anti-contamination shield prevents contamination



## Application-specific lid geometry:

- Flat, frosted cap with large labeling area
- Rough surface of labeling area prevents smudging of the label in the thermocycler
- Optimised lid geometry for maximum usage of heating block capacity



## Optimised for PCR

Optimal temperature transfer through thin-walled reaction tube

- Compatible with all common thermocyclers in 0.2 or 0.5 ml block format
- Suitable for centrifuging in the most common micro-centrifuges
- Small, separately packed, sterile Biosphere® plus or PCR Performance Tested - certified bag units also available

Multiply ${ }^{\oplus}$ Pro 0.2 and 0.5 ml with integrated anti-contamination shield on front edge of lid

| Product | Order no. | Vol. | Colour | Quality Grade | Units/bag Units/case |
| :---: | :---: | :---: | :---: | :---: | :---: |
|  | 72.735.100 | 0.5 ml | Transparent | 5 | 100/1,000 |
|  | 72.735.002 | 0.5 ml | Transparent | $0$ | 500/2,000 |
|  | 72.735.992 | 0.5 ml | - | 5 | 50/3,000 |
|  | 72.737 | 0.2 ml | Transparent | (m) | 250/2,000 |
|  | 72.737.002 | 0.2 ml | Transparent | Oer | 500/2,000 |
|  | 72.737.992 | 0.2 ml | - | (ea) | 50/3,000 |

PCR strips/Multiply ${ }^{\otimes} \mu$ StripPro with and without lid

| Product | Order no. | Vol. | Profile | Colour | Lid strip | Quality Grade | Units/bag Units/case |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| 2990 | 72.990 | 0.2 ml | High | Transparent | - | (0) | 50/400 |
|  | 72.990.002 | 0.2 ml | High | Transparent | - |  | 120/480 |
|  | 72.990.992 | 0.2 ml | High |  |  | $5$ | 120/480 |
| geggoges | 72.991.002 | 0.2 ml | High | Transparent |  | ex | 120/480 |
|  | 72.991.992 | 0.2 ml | High |  |  | ex | 120/480 |
| IIIIVIIIV | 72.991.103 | 0.1 ml | Low | Transparent | - |  | 12/1200 |
|  | 72.985.002 | 0.2 ml | High | Transparent | 65.989.XXX | $5$ | 120/480 |
|  | 72.985.992 | 0.2 ml | High | , | 65.989.XXX | ex | 120/480 |
|  | 72.985.092 | 0.2 ml | High | White | 65.989.XXX | ex | 120/480 |
| Doworvte | 72.982.002 | 0.1 ml | Low | Transparent | Included | Eax | 125/1250 |
| HTT11 | 72.982.092 | 0.1 ml | Low | White | Included | Eax | 125/1250 |

Multiply® lid strips, clear, suitable for real-time PCR

| Product | Order no. | Multiply ${ }^{\oplus}$ Strip, suitable for | Colour | Quality Grade | Units/bag Units/case |
| :---: | :---: | :---: | :---: | :---: | :---: |
|  | 65.989 | $\begin{gathered} 72.985 \\ 72.985 .002 \\ 72.985 .922 \\ 72.985 .902 \end{gathered}$ | Highly transparent | $\%$ | 12/240 |
|  | 65.989.002 | 72.985 72.985 .002 72.985.992 72.985 .092 | Highly transparent | $5$ | 120/480 |

RackSystem storage and pipetting station for 0.2 mi Multiply ${ }^{\circledR}$ PCR tubes and preloaded PCR trays

- Secure and rapid handling of Multiply ${ }^{\otimes}$ tubes
- Flexible 2-part system comprising work tray and base station
- Work tray can be inserted in the thermocycler without the need to move tubes
- 96-well microtiter format makes it ready for use with automated processing
- Stackable for space-saving back-up sample storage

Ordering information for PCR RackSystem

| Product | Order no. | Product description | Design | Packaging unit |
| :---: | :---: | :---: | :---: | :---: |
|  | 95.987.002 | PCR work tray for 0.2 ml PCR tubes | For 96 tubes | 5/bag |
|  | 95.988 | Base station for PCR work tray | Transparent | 5/case |
|  | 95.988 .001 |  | Red |  |
|  | 95.988.002 |  | Blue |  |
|  | 95.988.003 |  | Green |  |
|  | 95.988.004 |  | Yellow |  |

IsoFreeze ${ }^{\oplus}$ racks - reliable cooling of samples
Many sample preparations require consistent and reliable sample cooling. For temperature-sensitive applications, such as the analysis of enzymes, PCRs or cell-based assays, as well as the careful thawing of samples and the stopping of reactions, we offer the IsoFreezeब Rack; a pipetting and storage station with reliable temperature control.

- Consistently cooled samples - noticeable colour change from purple to pink when it moves outside the optimum temperature range (above $7^{\circ} \mathrm{C}$ ).
- With the lid in place and at normal ambient temperatures, the temperature of the samples is maintained at around $4^{\circ} \mathrm{C}$ for up to 3 hours.
- Minimises the risk of contamination, as there is no need to store samples on ice.

| Ordering information |  |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: |
| Order no. | Capacity | Format |  | Suitable for | Packaging |
| 95.983 | 24 | $4 \times 6$ | 1.5 and 2.0 ml micro tubes and screw-cap micro tubes | $1 /$ case |  |
| 95.984 | 96 | $8 \times 12$ | 0.1 and 0.2 ml PCR plates, strips and single tubes | $2 /$ case |  |



SARSTEDT

Cost-saving miniaturisation of qPCR assay in white Multiply ${ }^{\circledR}$ PCR plates
Fluorescence-based applications, like qPCR, particularly those involving small volumes, benefit from significantly improved reflective properties of white wells. Samples with low DNA concentrations can also be more easily detected.

The earlier due to maximum signal reflection (see fig. 1). The volume of reagent (SYBR Green) per well can be reduced from $25 \mu \mathrm{l}$ to $15 \mu \mathrm{l}$ in white plates sealed with optimum qPCR films, without significantly affecting sensitivity or stability of the reaction (see fig. 2). This effectively reduces the cost of the qPCR assay by $40 \%$.
In addition, white plates reduce background interference ('crosstalk' between clear wells/cycler block), which in turn diminishes well to-well variability.



Multiply ${ }^{\circledR}$ polypropylene PCR plates, white and transparent

- Optimal temperature transfer through thin-walled reaction tube
- Plates with half and full skirt available, also with barcode label upon reques
- White plates are optimised for real-time PCR
- Black alphanumeric print for easy identification of wells


Low profile 96-well Multiply ${ }^{\circledR}$ PCR plates

## $\qquad$

or th
liquid PCR mixture to transfer to the gas phase when it is being heated in The low profile design means there is less of condensation on the side walls when heated during PCR. This in turn keeps the PCR mixture reaction conditions more constant, ensuring improved reaction efficiency.

Universal plates without skirt

| Universal plates without skirt |  |  |  |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| - Developed <br> - Compatible | use in Fast <br> with all sealing | thermoc s and fo |  |  |  |  |  |
| Order no. | Colour | Skirt | Deck | Profile | Well | Max. volume | Units/bag Units/case |
| 72.1977.202 | Transparent | Without | Flat | Low profile | 96 | 0.1 ml | 20/100 |
| 72.1977.232 | White | Without | Flat | Low profile | 96 | 0.1 ml | 20/100 |

Half-skirt design

- Compatible with many Applied Biosystems (ABI) thermocyclers
- Increased stability for automated systems
- Can be sealed using clear 8 -lid strips ( 65.1998 .400 ) or adhesive films and foils (95.1999, 95.1994 and 95.1993 )

| Order no. | Colour | Skirt | Deck | Profile | Well | Max. volume | Units/bag <br> Units/case |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| 72.1981.202 | Transparent | Half-skirt | Lip around deck <br> edge | Low profile | 96 | 0.1 ml | $25 / 100$ |
| 72.1981 .232 | White | Half-skirt | Lip around deck <br> edge | Low profile | 96 | 0.1 ml | $25 / 100$ |

Lightcycler 480 PCR plate with 96 wells and lateral skirt

- Raised well edges, tailored for heat-sealing films
- Can be sealed using qPCR film (95.1999, 95.1994, 95.1993) or clear 8-lid strips (65.1998.400)
- Low profile design minimises dead volume and cycle time


| Order no. | Colour | Skirt | Deck | Profile | Well | Max. volume | Units/bag <br> Units/case |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| 72.1982 .202 | White | Half-skirt | Flat deck | Low profile | 96 | 0.1 ml | $25 / 100$ |

Stable full-skirt design

- Increased stability for automated systems
- Raised well edges, tailored for heat-sealing films
- Can be sealed using qPCR film (95.1999, 95.1994, 1993) or clear 8-lid strips (65.1998.400)

| Order no. | Colour | Skirt | Deck | Profile | Well | Max. volume | Unit/bag <br> Units/case |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| 72.1980 .202 | Transparent | Full skirt | Flat deck | Low profile | 96 | 0.1 ml | $10 / 200$ |
| 72.1980 .232 | White | Full skirt | Flat deck | Low profile | 96 | 0.1 ml | $10 / 200$ |

High profile 96-well Multiply ${ }^{\circledR}$ PCR plates
High profile PCR plates are available with half-skirt, full-skirt or no skirt.

Conveniently preloaded - the alternative to polycarbonate frame plates

- PCR work tray loaded with twelve 8-well PCR strips
- Biosphere® plus, individually sterile wrapped
- Can be sealed using clear 8-lid strips (65.989.002 or 65.989)
- Polycarbonate work tray
- Can be used in the RackSystem (see p. 24)
- Free of DNA, DNase/RNase, PCR inhibitors, ATP and pyrogens/endotoxins

| Order no. | Colour | Skirt | Deck | Profile | Well | Max. volume | Blister packs/box |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| 72.985 | Transparent | Without | Flat | High profile | 96 | 0.3 ml | $1 / 20$ |

Universal plates without skirt - easy to cut

- Their universal design means that PCR plates without a skirt are suitable for use with most thermocyclers
- Can easily be cut into smaller sections for lower number of specimens
- Raised well edges, tailored for heat-sealing films
- Can be sealed using qPCR film (95.1999, 95.1994, 95.1993) or clear 8-lid strips (65.1998.400)

| Order no. | Colour | Skirt | Deck | Profile | Well | Max. volume | Units/bag <br> Units/case |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| 72.1978 .202 | Transparent | Without | Flat | High profile | 96 | 0.3 ml | $5 / 100$ |
| 72.1978 .232 | White | Without | Flat | High profile | 96 | 0.3 ml | $10 / 200$ |

Half-skirt design - practical flat deck

- Specially designed for Applied Biosystems (ABI) thermocyclers and DNA sequencers
- Flat deck makes it easier to securely seal with film
- Raised well edges, tailored for heat-sealing films
- Can be sealed using qPCR film (95.1999, 95.1994, 95.1993) or clear 8 -lid strips (65.1998.400)
- Also available with barcode label

| Order no. | Colour | Skirt | Deck | Profile | Well | Max. volume | Units/bag |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| Units/case |  |  |  |  |  |  |  |
| 72.1979 .102 | Transparent | Half-skirt | Flat deck | High profile | 96 | 0.3 ml | $5 / 100$ |
| 72.1979 .132 | White | Half-skirt | Flat deck | High profile | 96 | 0.3 ml | $5 / 100$ |

Half-skirt design - raised lip around edge
e

- Specially designed for Applied Biosystems (ABI) thermocyclers and DNA sequencers
- Facilitates automated processing
- Can be sealed using clear 8-lid strips (65.1998.400) or adhesive films (95.1999, 95.1994 and 95.1993 )
- Also available with barcode label (72.1979.203)

| Order no. | Colour | Skirt | Deck | Profile | Well | Max. volume | Units/bag <br> Units/case |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| 72.1979 .202 | Transparent | Half-skirt | Lip around <br> deck edge | High profile | 96 | 0.3 ml | $25 / 100$ |
| 72.1979 .203 | Transparent | Half-skirt with <br> barcode label | Lip around <br> deck edge | High profile | 96 | 0.3 ml | $25 / 100$ |

Clear lid strip for 96-well plates

| Product | Order no. | Description | Design | Colour | Units/bag Units/case |
| :---: | :---: | :---: | :---: | :---: | :---: |
| Orosoroyosorerem | 65.1998.400 | Strip of 8 lids, flat for 96 -well plates, highly transparent | $5$ | Transparent | 12/1,200 |

384-well Multiply ${ }^{\circledR}$ PCR plate with lateral skirt

- Eight openings in the frame allow for easier positioning and removal from the heating block
- Can be sealed using adhesive films (95.1999, 95.1994 and 95.1993 )
- Suitable for use with many robotic systems

| Order no. | Colour | Skirt | Deck | Well | Max. volume | Units/bag <br> Units/case |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| 72.1984.202 | Transparent | Full skirt | Flat deck | 384 | $40 \mu \mathrm{l}$ | $25 / 50$ |

Lightcycler 480 PCR plate with 384 well and lateral skir

- Raised well edges, tailored for heat-sealing films
- Can be sealed using qPCR film (95.1999, 95.1994 and 95.1993)

| Order no. | Colour | Skirt | Deck | Well | Max. volume | Units/bag |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| 72.1985 .202 | White | Full skirt | Flat deck | 384 | $40 \mu$ | Units/case |



| Number of wells | 96 pre-inserted | 96 | 96 | 96 | 96 | 384 full skirt |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| Haliffull skirt | Without | Without | Half | Full | Half | Full |
| Profile | High | High | High | Low | Low |  |
| Order no. PCR plates | 72.985 | 72.1978.202 72.1978.232 | $\begin{aligned} & 72.1979 .102 \\ & 77.1999 .132 \\ & 77.1999202 \\ & 72.1999 .203 \end{aligned}$ | $\begin{aligned} & 72.1980 .202 \\ & 72.1980 .232 \end{aligned}$ | $\begin{aligned} & 72.1981 .202 \\ & \text { 7.1981.232 } \end{aligned}$ | 72.1984.202 |
| Amersham Biosciences ${ }^{\text {/ G GE Heathcare }}{ }^{\text {e }}$ |  |  |  |  |  |  |
| MegaBACE 500/1000 DNA Analysis System |  |  |  | $\bullet$ |  |  |
| MegaBACE 4000 DNA Analysis System |  |  |  |  |  | $\bullet$ |
| Analytik Jena\%/Biometra* |  |  |  |  |  |  |
| FlexCycler 29 -well |  | $\bullet$ |  |  |  |  |
| qTOWER 2.0/2.2 SP | $\bullet$ | $\bullet$ |  | $\bullet$ |  |  |
| SpeedCycler ${ }^{2} 96$-well SP \& SPR | $\bullet$ | - |  | $\bullet$ |  |  |
| TAdvanced | - | $\bullet$ |  |  |  |  |
| TOptical | - | - |  | - |  |  |
| TRobot 96-well | $\bullet$ | $\bullet$ |  | $\bullet$ |  |  |
| TRobot 384-well |  |  |  |  |  | - |
| TProfessional famil 96 -well (except TRIO) |  | - |  | - |  |  |
| TProfessional family 384-well (except TRIO) |  |  |  |  |  | - |
| Applied Biosystems\%/Life Technologies ${ }^{\text {® }}$ |  |  |  |  |  |  |
| GeneAmp ${ }^{\text {2700/2720 }}$ |  | $\bullet$ | $\bullet$ |  |  |  |
| GeneAmp ${ }^{\text {7 } 500 / 5700}$ |  | - | - |  |  |  |
| GeneAmp 9600 | $\bullet$ | - | - |  |  |  |
| GeneAmp 9700 | $\bullet$ | $\bullet$ | $\bullet$ |  |  |  |
| GeneAmp 9800 FAST Block |  |  |  |  | - |  |
| PE 2700 |  | - | - |  |  |  |
| PE 9600 | $\bullet$ | $\bullet$ | $\bullet$ |  |  |  |
| PE 9700 | $\bullet$ | - | - |  |  |  |
| Prism ${ }^{\text {9 }} 2720$ |  | $\bullet$ | $\bullet$ |  |  |  |
| Prism ${ }^{\text {P 7000/7700 }}$ |  | - | - |  |  |  |
| Prism ${ }^{\text {\% 7300/7500 }}$ |  |  | - |  |  |  |
| Prism 7500 Fast |  |  |  |  | - |  |
| Prism ${ }^{\text {7 7900HT }}$ |  |  | - |  |  | $\bullet$ |
| Prism 7900 Fast |  |  |  |  | - |  |
| Prism® 7900 HT Fast |  |  |  |  | $\bullet$ | - |
| Quantstudio ${ }^{\text {TM }}$ |  |  | - |  |  |  |
| StepOne Plus ${ }^{\text {TM }}$ |  |  |  |  | - |  |
| Veritie 96 -well 384 -well |  |  | - |  |  | - |
| Veritio Fast 96-well |  |  | $\bullet$ |  | - |  |
| Viatim |  |  | $\bullet$ |  |  |  |
| 310 Genetic Analyser |  | $\bullet$ | $\bullet$ |  | - * |  |
| 3100/3130 Genetic Analyser |  | $\bullet$ | - |  | $\bullet *$ |  |
| 3500/3500xL Genetic Analyser |  |  | $\bullet$ |  | $\bullet$ - |  |
| 3700/3730/7730XL Genetic Analyser |  | - | - |  | - * |  |
| PeqLab ${ }^{\text {® }}$ |  |  |  |  |  |  |
| peqSTAR 96 |  | $\bullet$ | $\bullet$ | $\bullet$ |  |  |
| pegSTAR 384 |  |  |  |  |  | $\bullet$ |
| Thermo Fisher Scientific ${ }^{\text {® }}$ |  |  |  |  |  |  |
| Multiblock System |  | $\bullet$ |  | $\bullet$ |  | - |
| PCR Sprint |  | - |  | - |  |  |
| Key: $\quad$ - recommended | = not checked |  |  |  | * with a suital | ABl adapter |




Adhesive sealing films and foils
Specially designed foil materials are required tor hermetically seaing polypropylene, polystyrene and polycarbonate micro test plates, to prevent evaporation and to protect the samples during the appication and while the samples are being stored or delivered. A variety of Sarstedt sealing films and foils are available that have been specifically developed for the demands of PCRS, substance storage, and of high throughput screening. They are all produced under cleanroom conditions to prevent contamination with DNase/ RNase and nucleic acids. All films and foils are compatible with aqueous solutions and organic solvents such as DMSO, acetonitrile and methanol.

Highly transparent adhesive film for quantitative PCR • 95.1999 This 50 um thin film is coated with a streak-free, transparent adhesive. At room temperature, its adhesive properties are minimal, which facilitates handling. Strong achesion takes places only when the film is pressed down or through the thermal n losses
the needs of real-time PCR and other

- Secure sealing due to use of innovative adhesive
- Does not stick to skin or gloves


Transparent adhesive film for PCR • 95.1994

- Clear film for standard (and real-time) PCR
- Ideal for storage of sample materials at temperatures as low as $-70^{\circ} \mathrm{C}$

Transparent adhesive film for qPCR • 95.1993
The film consists of a 50 - $\mu$-thin, highly transparent polyester film, coated with a special adhesive.

- High transparency
- Effective protection against evaporation


Adhesive aluminium foil for PCR and sample storage • 95.1995 This heat-resistant, strong but pierceable 38 - $\mu$ m aluminium foil offers impressively high protection against evaporation and resistance to solvents. Perforated side tabs applied

- Aluminium foil can be pierced, for example with pipette tips
- Ideal for storage of sample materials/substances at temperatures as low as $-70^{\circ} \mathrm{C}$


Ordering information

| Order no. | Product description | Application | Special properties | Clear | Pierceable | Functional temperature range | Packaging |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| 95.1993 | Transparent PCR and qPCR film | $P C R$, real-time PCR | $\underset{\substack{\text { Thin material, highly } \\ \text { transparent }}}{\text { and }}$ | + | No | $-40^{\circ} \mathrm{C}$ to $120^{\circ} \mathrm{C}$ | 100 films/inner box |
| 95.1994 | Transparent PCR and qPCR film | PCR, sample storage | Highly adhesive, high chemical resistance | + | No | $-70^{\circ} \mathrm{C}$ to $105^{\circ} \mathrm{C}$ | 100 films/inner box |
| 95.1995 | Adhesive aluminium foil | Sample storage, PCR | Pierceable, protects samples from light, high chemical resistance |  | Yes | $-70^{\circ} \mathrm{C}$ to $105^{\circ} \mathrm{C}$ | 100 films/inner box |
| 95.1999 | Adhesive, highly transparent qPCR film | Real-time PCR, fluorescence analyses | Highly transparent, heatsensitive adhesive, minimizes evaporation rates | + | No | $-80^{\circ} \mathrm{C}$ to $100^{\circ} \mathrm{C}$ | 100 films/inner box |

Which foil is right for my application?

|  |  | Fim/foil properties |  | Order no. |
| :---: | :---: | :---: | :---: | :---: |
|  | $\longrightarrow$ | Encapsulated adhesive | $\rightarrow$ | 95.1999 |
|  |  | Standard fim | $\rightarrow$ | 95.1993 |
|  |  | Aluminium, pierceable | $\longrightarrow$ | 95.1995 |
| End-point PCR | $\longrightarrow$ | Transparent, highly adhesive | $\longrightarrow$ | 95.1994 |
|  | - | Aluminium, pierceable | $\longrightarrow$ | 95.1995 |
|  |  | Transparent, highly adhesive | $\longrightarrow$ | 95.1994 |

le storage

SARSTEDT


As the trend towards decreasing volumes continues, it is increasingly important to minimise any interactions between the analytes and the tubes used. Sarstedt has therefore developed micro tubes and screw cap micro tubes that ensure a maximum recovery rate to meet the requirements of protein and DNA analytics. Minimising sample loss - especially for costly and valuable reagents - is essential to save costs, achieve accurate analysis results, and ensure secure storage over a long period of time.
Special high-quality plastics are used for Sarstedt low binding vessels. A repellent coating, for example with silicones, which could falsify the analyses is not necessary
Product benefits of the low binding micro tubes at a glance:

- Available in three sizes - $0.5 \mathrm{ml}, 1.5 \mathrm{ml}$ and 2.0 m
- Durable - Low protein binding tubes can be centrifuged up to $20,000 \times \mathrm{g}^{*}$, Low DNA binding tubes can be centrifuged up to $30,000 \times \mathrm{g}^{*}\left(2 \mathrm{ml}\right.$ up to $\left.25,000 \times \mathrm{g}^{*}\right)$
- Certified PCR Performance Tested quality - DNA-free, DNase/RNase-free and free from PCR inhibitors
- Convenient small pack sizes - 50 tubes in a resealable bag to reduce risk of contamination
*Filled with demineralised water (Iow surface tension) up to nominal volume, at $20^{\circ} \mathrm{C}$ for 90 minutes in a fixed-angle rotor.
PCR Performance-Tested quality:
$\checkmark$ DNA-free $\quad \checkmark$ Free of DNase/RNase $\quad \checkmark$ Free of PCR inhibitors
Low protein binding - comparison of mean BSA losses:



## Experiment method:

Ten test tubes each from various suppliers were filled with an aqueous solution of BSA at a concentration of $10 \mu \mathrm{~g} / \mathrm{m}$ in water and stored at $4^{\circ}$ C. After incubation over 24 hours,
the BSA solution was removed and the concentration was the BSA solution was removed and the concentration was
determined using a Bradford assay (Zor, T. and Selinger. 1996, Anal. Biochem. 236, pp. 302-308).
Percentage losses were calculated based on the mean value across the 10 tubes tested.

Low DNA binding - comparison of DNA losses:

Ten test tubes each from various suppliers were filled with er an incubation period of 3 hours, the DNA content was determined using
One of the ten test series is shown in this diagram as an example.
— Control — Supplier A — Supplier C

Ordering information

| Volume | Order no. | Description |  | Packaging |
| :---: | :---: | :---: | :---: | :---: |
| 0.5 ml | $\begin{aligned} & 72.704 .600 \\ & 72.704 .700 \end{aligned}$ | Low protein-binding Low DNA-binding | $P$ | 50 units/bag 300 units/inner case 1,200 units/box |
| 1.5 ml | $\begin{aligned} & 72.706 .600 \\ & 72.706 .700 \end{aligned}$ | Low protein-binding Low DNA-binding | $P$ | 50 units/bag 200 units/inner case 800 units/box |
| 2.0 ml | $\begin{aligned} & 72.695 .600 \\ & 72.695 .700 \end{aligned}$ | Low protein-binding Low DNA-binding | $P$ | 50 units/bag 200 units/inner case 800 units/box |



SafeSeal micro tubes
The demands on micro tubes are varied: they must be able to withstand mechanical and thermal loads, interactions with the analytes should be minimised, and biological purity is a priority. In addition to standard micro tubes and low-binding tubes, we also offer SafeSeal versions for use under thermal loads. Our PCR Performance Tested and Biosphere ${ }^{\oplus}$ plus quality standards provide certified purity.

- Retaining cams ensure cap is firmly sealed, even under thermal load
- Wide cap connection for straightforward and accurate sealing
- Large labelling area on cap
- Can be centrifuged up to $30,000 \times \mathrm{g}^{*}$ ( 2.0 ml up to $25,000 \times \mathrm{g}^{*}$ )
*Filled with demineralised water (low surface tension) up to nominal volume, at $20^{\circ} \mathrm{C}$ for 90 minutes in a fixed-angle rotor

| volume | Order no. | Purity Grade | Packaging |
| :---: | :---: | :---: | :---: |
| 0.5 ml | 72.704.200 | (4) | 50/bag • 250/inner case - 500/case |
|  | 72.704.201* | (4) | Individually wrapped •50/inner case •100/case |
|  | 72.704 .400 | (0) | 250/bag • 500/inner case - 2,000/case |
| 1.5 ml | 72.706 .200 | (4) | 50/bag - 250/inner case - 500/case |
|  | 72.706.201 | (4) | Individually wrapped •60/inner case •120/case |
|  | 72.706 .400 |  | 250/bag •1,000/inner case •2,000/case |
| 2.0 ml | 72.695.200 | (9) | 50/bag - 250/inner case - 500/case |
|  | 72.695.201 | (4) | Individually wrapped •60/inner case •120/case |
|  | 72.695.400 | ) | 250/bag $\bullet$ 1,000/inner case $\bullet$ 2,000/case |

The plastic material of the UV cuvette enables measurements in the UV range at wavelengths of 220 nm upwards. Disposable cuvettes prevent the contamination that can arise in quartz cuvettes due to washing processes. In addition to non-certified UV cuvettes, certified UV cuvettes are also available individually sealed with a cap. All UV cuvettes are packed in Styrofoam racks to avoid scratches.
Typical applications and product features

- Photometric quantification of nucleic acids at 260 nm and of proteins at 280 nm
- Minimal absorption in the UV range
- Suitable for photometers with a light centre height (LCH) of 8.5 mm and 15 mm : Eppendorf Biophotometer, ThermoSpectronic,

Perkin Elmer, Bio-Rad, Analytik Jena, etc.

- Uniform and precise clarity reduces absorbance variability
- Economical compared to quartz cuvettes
- Certified DNA/RNase/protein-free options individually sealed with lids are available. The lid protects against contamination and allows samples to be stored directly in the cuvette.
The UV cuvette is particularly suitable for use in nucleic acid or protein quantification due to low self-absorption properties in the low wavelength range.

Transmission depending on the wavelength

| $\begin{gathered} \mathrm{T} \%{ }^{100} \end{gathered}$ | UV cuvetteAcrylicPolystyrene | Wavelength (nm) | Transmission (T) in \% |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: |
| $\square$ |  |  | uv | Acrylic | Polystyrene |
| , |  | 260 | 73\% | 23\% | 0\% |
| 60. |  | 280 | 86\% | 68\% | 0\% |
| - |  | 313 | 94\% | 93\% | 66\% |
| ${ }^{40}$ |  | 334 | 96\% | 97\% | 79\% |
| 20.1 |  | 366 | 97\% | 98\% | 90\% |
| ${ }^{20}$ UV cuvette Acrylic Polystyrene |  | 405 | 98\% | 99\% | 95\% |
|  |  | 560 | 98\% | 99\% | 96\% |

The graph and the table display the precise light transmission of the cuvette depending on the different wavelengths and the different plastic types. Cuvettes each filled with distilled, clear water. Optical path length 10 mm

| Technical specifications |  |
| :--- | :--- |
| Minimum sample volume: | $50 \mu \mathrm{l}$ |
| Optical path length: | 10 mm |
| Basic absorbance: | at $260 \mathrm{~nm} \leq 0.134 \mathrm{E}$ <br> at $280 \mathrm{~nm} \leq 0.065 \mathrm{E}$ <br> External dimensions $(\mathrm{W} \times \mathrm{D} \times \mathrm{H})$ : <br> $12.5 \times 12.5 \times 45 \mathrm{~mm}$ <br> Photometer and centre height (CH): <br> 8.5 mm and 15 mm |



Ordering information for UV micro cuvette

| Order no. | Height in mm | L.CH | Clear sides | Units/Styrofoam rack/case |
| :--- | :---: | :---: | :---: | :---: |
| 67.758 | 45 | 8.5 mm | 2 | $100 / 400$ |
| 67.758 .001 | 45 | 8.5 mm | 2 | $100 / 00$ |
| 67.759 | 45 | 15 mm | 2 | Individually sealed with lid, DNA-/RNase-/protein-free |
| 67.759 .001 | 45 | 15 mm | 2 | $100 / 400$ |

## If you have any questions, we'll be happy to help!

Visit our website: www. sarstedt.com


Brochure 537


Brochure 215


Brochure 683


Brochure 471


Brochure 779


Brochure 681

