



14 Accessories

13 Reaction Tubes/
Analyser Cups

**12 Lids/Sealers/
CapMats**

11 Cryo-
Technics

10 Biochips/
Microfluidics

9 Separation

8 Protein
Crystallisation

7 Molecular
Biology

6 Liquid
Handling

5 Tubes/Multi-
Purpose Beakers




4 Microbiology/
Bacteriology

3 Immunology/
HLA

2 HTS-
Microplates

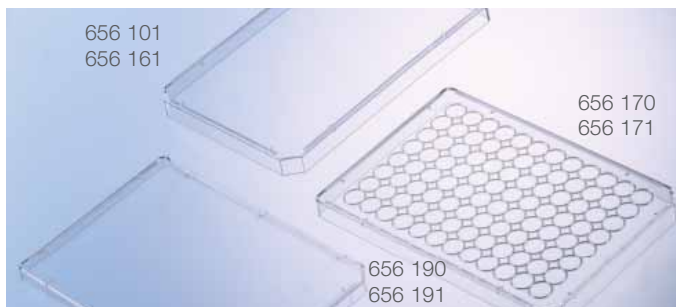
1 Cell/
Tissue Culture

12 Lids / Sealers / CapMats

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Lids

Polystyrene Lids



Polystyrene Lids High Profile / Low Profile

- ▶ Cell Culture Microplates p. 1 | 12 ff.
- ▶ HTS Microplates p. 2 | 6 ff.

- High, low and ultra low profile lids
- All sterile lids are non-cytotoxic

Lids offer protection against contamination and evaporation during sample storage and cell cultivation. Four different polystyrene lids are available:

1. High profile lids (9 mm)

High profile without condensation rings is mainly used for non TC-treated 96 well microplates.

2. High profile lids (9 mm) with condensation rings

High profile with condensation rings is recommended for cell culture applications, since it ensures an optimum oxygen supply to cultivated cells due to improved gas exchange.

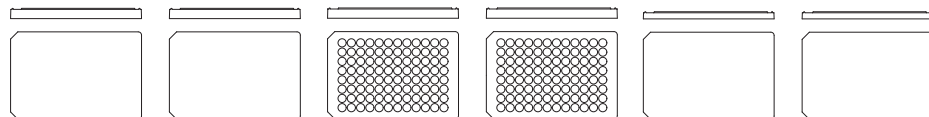
3. Low profile lids (6 mm)

Low profile is particularly recommended for 384 well standard microplates as the well contents are protected against evaporation and contamination, and the covered microplates can be easily gripped on the side in automated processes.

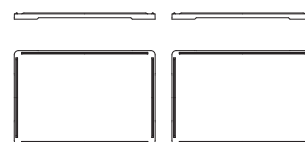
4. Universal ultra low profile lids

The ultra low profile lid has a universal design, and is compatible with a whole range of different microplates. In particular high-format low profile microplates, such as the 384 well Small Volume™ LoBase or the 1536 well microplate can be sealed with the ultra low profile lid. This lid provides the greatest possible protection against evaporation, and is also suitable for use in automated systems. Recesses in the edge of the lid improve the readability of barcodes, and sealed microplates can be easily gripped from the side and transported without problem.

Free of detectable
DNase, RNase,
human DNA
non-pyrogenic



Cat.-No.	656 101	656 161	656 170	656 171	656 190	656 191
Description	lid	lid	lid	lid	lid	lid
Lid profile / height [mm]	high / 9	high / 9	high / 9	high / 9	low / 6	low / 6
Condensation rings	-	-	+	+	-	-
Sterile	-	+	-	+	-	+
Quantity per bag/case	1/100	1/100	1/100	1/100	20/200	20/200



Cat.-No.	691 101	691 161
Description	lid	lid
Lid profile	ultra low	ultra low
Condensation rings	-	-
Sterile	-	+
Quantity per bag/case	5/100	5/100

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Sealers

Many applications in immunology, molecular biology, high-throughput screening or cell culture require tightly sealed microplates. Adhesive sealers are an interesting alternative to heat sealing systems or CapMats. They are easy to use and there is a lower risk of cross-contamination because they are used as disposable products.

Five different sealers are available which can be divided into two different classes on the basis of the adhesive used.

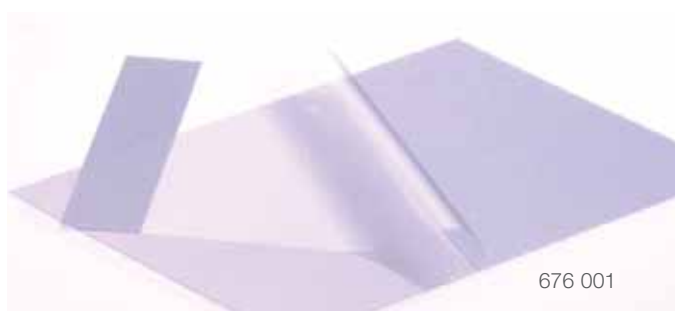
The classical sealers such as EASYseal™, AMPLIseal™, SILVERseal™ and BREATHseal™ are coated with an acrylate adhesive. The advanced sealer VIEWseal™ is coated with a pressure-sensitive silicone adhesive.



Further information on sealers

→ **Forum No. 6: Sealers for microplates and their areas of application in molecular biology and cell culture (F073 013)**

EASYseal™ and SILVERseal™

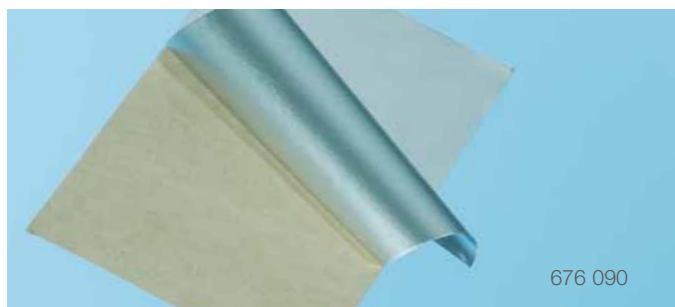


676 001

EASYseal™

- Coverage / storage of microplates
- Protection against evaporation / contamination
- Suitable for optical measurements

Cat.-No.	676 001
Special feature	transparent
Sterile	-
Quantity per bag/case	100



676 090

SILVERseal™

- Pierceable aluminium foil coated with an acrylate adhesive
- Temperature-resistant from -80 °C to +110 °C
- Ideal for PCR applications
- Ideal for the storage of sample material and active agents

SILVERseal™ is coated with an acrylate adhesive (Fig. 1) which remains flat when removed from its paper backing, and can thus be easily applied to all microplate types. A double perforation makes it possible to tear off the projecting adhesive sealer and thus improves the stacking of sealed microplates.

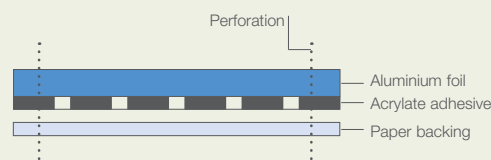


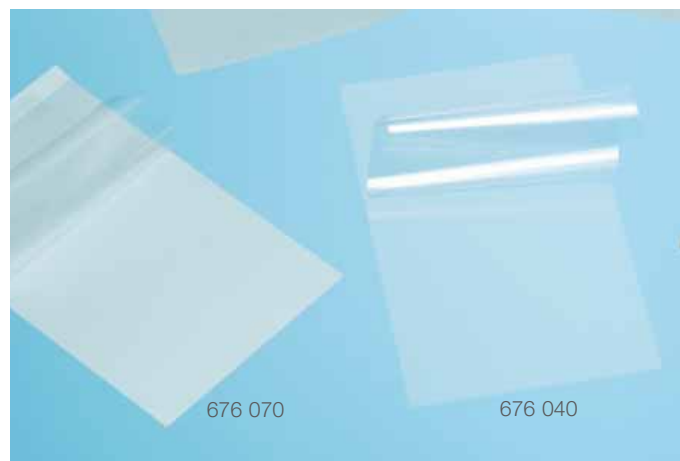
Figure 1:
Structure of SILVERseal™

PCR

Free of detectable
DNase, RNase,
human DNA
non-pyrogenic

Cat.-No.	676 090
Special feature	aluminium foil
Sterile	-
Quantity per bag/case	100

VIEWseal™ and AMPLIseal™



VIEWseal™ and AMPLIseal™

- ▶ Cell Culture Microplates p. 1 | 12 ff.
- ▶ HTS Microplates p. 2 | 6 ff.
- ▶ PCR Microplates p. 7 | 4 ff.

VIEWseal™

- Highly transparent film for precise optical measurements
- Ideally suited for protein crystallography

AMPLIseal™

- Highly transparent film with minimal autofluorescence
- Ideal for Real Time PCR

PCR Free of detectable DNase, RNase, human DNA non-pyrogenic

Cat.-No.	676 070	676 040
Description	VIEWseal™	AMPLIseal™
Special feature	transparent	transparent
Sterile	-	-
Quantity per bag/case	100	100

VIEWseal™

VIEWseal™ (Fig. 2 and Fig. 3) is an adhesive sealing film coated with a silicone adhesive which only sticks when the film surface is pressed on. Thus the sealing film is easy to work with, even when wearing gloves (The film does not adhere to gloves). Substances in powder form and biological model organisms like *Drosophila melanogaster* or *Caenorhabditis elegans* also do not stick to vessels sealed with VIEWseal™.

VIEWseal™ withstands heating at +110 °C and tolerates cold temperatures down to -80 °C and is therefore suitable for PCR applications (Fig. 4) and sample storage. VIEWseal™ stands out over EASYseal™ and AMPLIseal™ through its exceptionally high optical transparency also in the shorter wavelength range (< 340 nm) (Fig. 6). The exceptional transparency of VIEWseal™ is accompanied by minimal autofluorescence. VIEWseal™ is thus especially well suited for microscopic applications, such as the detection of protein crystals in protein crystallography.

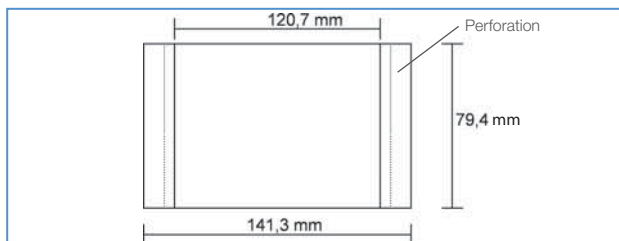


Figure 3: External dimensions of SILVERseal™, VIEWseal™ and AMPLIseal™

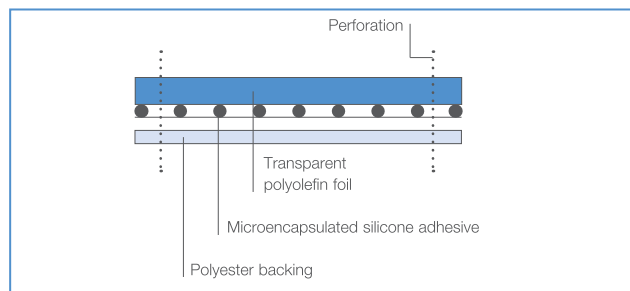


Figure 2: Structure of VIEWseal™

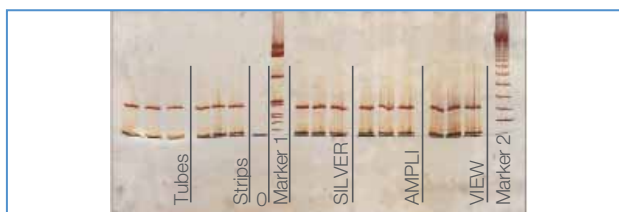


Figure 4: Comparison of PCR products from classical thin wall tubes (tubes/strips) with PCR products from 96 well polypropylene microplates covered with a sealer

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AMPLiseal™

AMPLiseal™ is a self-adhesive sealing film notable for its low autofluorescence, in particular in the wavelength range critical for Real Time PCR (Fig. 7). AMPLiseal™ consists of a 51 µm thick polypropylene film coated with a highly transparent acrylate adhesive. The adhesive layer is protected by a peelable polyester film. The strongly adhering acrylate adhesive provides a reliable sealing of the microplate, thereby minimising evaporation but without influencing the PCR reactions or the fluorescence measurements. AMPLiseal™, with external dimensions of 141.3 mm x 79.4 mm, covers PCR microplates with a skirt and all other microplates with a standard microplate footprint. Protruding extra film can be removed without problem with a double perforation.



Figure 5: Microscopic detection of protein crystals with polarised light through AMPLiseal™

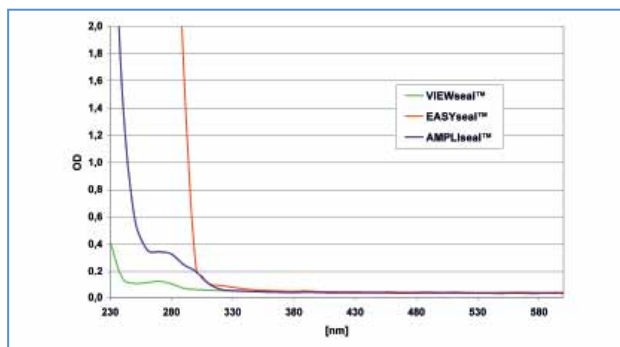


Figure 6: Light absorption of VIEWseal™, EASYseal™ and AMPLiseal™

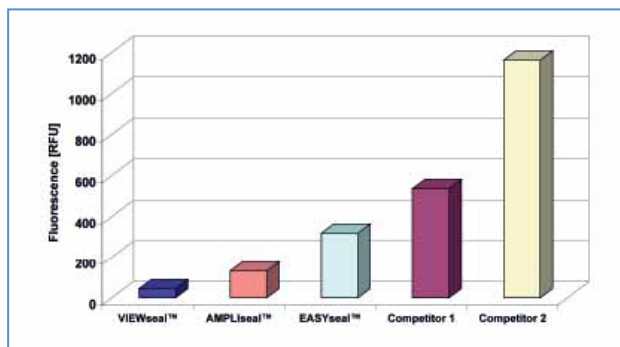
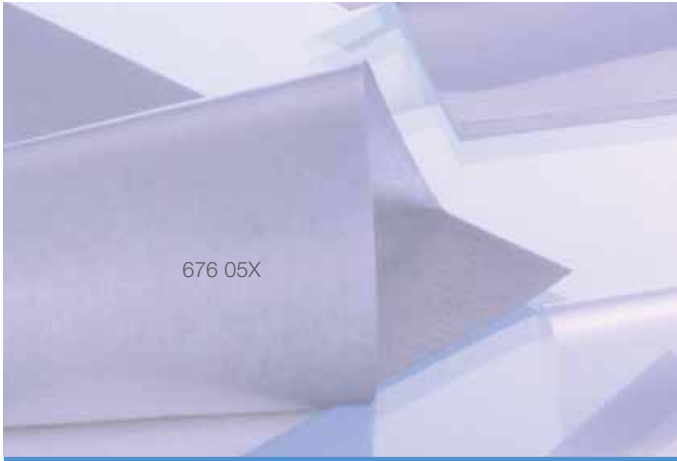


Figure 7: Autofluorescence of AMPLiseal™ compared to VIEWseal™ and other sealing films. The wavelength combination used (479 nm / 520 nm) corresponds to the excitation and emission maximum of SybrGreen

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BREATHseal™



BREATHseal™

- ▶ Cell Culture Microplates p. 1 | 12 ff.
- ▶ HTS Microplates p. 2 | 6 ff.

- Gas-permeable, pierceable membrane coated with acrylate adhesive
- Available non-sterile or sterile
- Ideal for cultivating bacteria, yeast or cells

BREATHseal™ is a gas-permeable membrane coated with acrylate adhesive, consisting of heat-sealed rayon fibres. The pore size varies between 10 and 50 µm (Fig. 8). The pores are layered in such a way that the membrane acts as a filter, reliably ensuring that the contents of the wells are protected against airborne bacteria, while maintaining optimal oxygen supply. BREATHseal™ is suitable for cultivating bacteria, yeast or cells in microplates. For a high cell yield, which in turn means a high DNA or protein yield, it is necessary that the organisms are optimally supplied with oxygen. The oxygen supply is limited in microplates sealed with a lid. The use of a gas-permeable sealer such as BREATHseal™ significantly improves cell growth (Fig. 9).

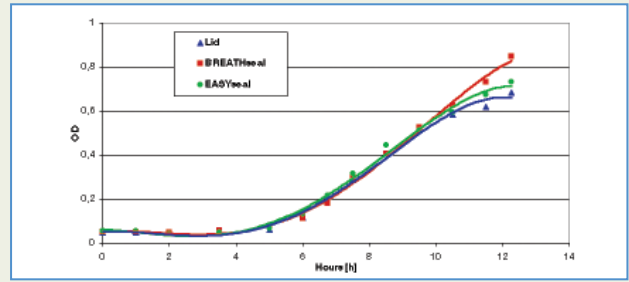


Figure 9: Growth of *Escherichia coli* at 37 °C in MASTERBLOCK® sealed with BREATHseal™, EASYseal™ and lids

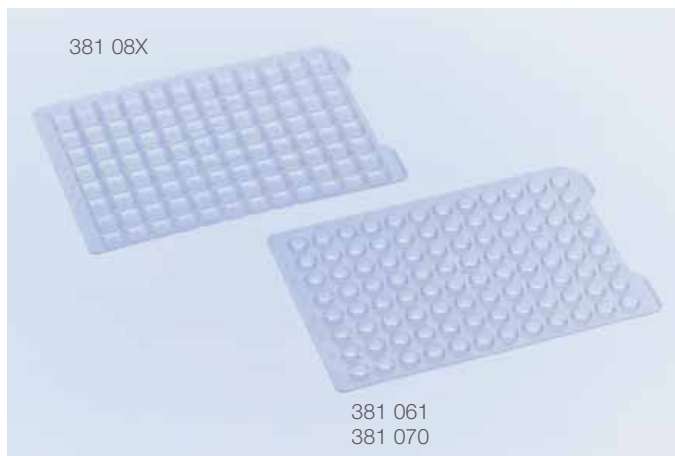


Figure 8: Microscopic image of BREATHseal™ (10-fold magnification)

Cat.-No.	676 050	676 051
Special feature	gas-permeable	gas-permeable
Sterile	-	+
Quantity per bag/case	50/500	50/500

CapMats

Ethyl Vinyl Acetate CapMats



Ethyl Vinyl Acetate CapMats

HTS Microplates p. 2 | 6 ff.

- Available for 96 well microplates and MASTERBLOCK®
- Available non-sterile or sterile

An alternative method for sealing 96 well plates are CapMats. The 96 well CapMats are made of ethyl vinyl acetate (EVA). They are resistant to DMSO and can be used in a temperature range between -20 °C and +60 °C.

- 96 well CapMats with **round** naps (Cat.-No. 381 070, 381 061) Both are suitable for sealing the 1 ml and 0.5 ml 96 well MASTERBLOCK®, in addition to standard 96 well polypropylene microplates. The 96 well F-, U- and µClear®-bottom polystyrene microplates may also be sealed (except 96 well V-bottom polystyrene microplates). These CapMats are not pierceable.

- 96 well CapMats with **square** naps (Cat.-No. 381 080, 381 081) Both are suitable for the 2 ml 96 well MASTERBLOCK®. These CapMats are not pierceable.

PCR Free of detectable DNase, RNase, human DNA non-pyrogenic

Cat.-No.	381 070	381 061	381 080	381 081
Description	96 well CapMat	96 well CapMat	96 well CapMat	96 well CapMat
Nap shape	round	round	square	square
Material	EVA	EVA	EVA	EVA
Pierceable	-	-	-	-
Sterile	-	+	-	+
Quantity per bag/case	10/50	1/50	10/50	1/50

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