lumox® & x-well Technology

SARSTEDT
lumox® cell culture products are characterised by their ultra-thin, gas-permeable film base. Optimum gas exchange is guaranteed due to the gas permeability and the short diffusion paths. The lumox® film base has very low autofluorescence in comparison with conventional polystyrene bases (Fig. 1) and a higher light transmission in comparison with conventional polystyrene or glass bases (Fig. 2). The low autofluorescence and the excellent light transmission of the lumox® film lead to a consistently high sensitivity in assays and when using imaging and reader techniques. The range of uses of the lumox® products spans from normal cell culture to automated analysis of fluorescence-based cell assays.

### Lumox® Advantages at a glance

- Very low autofluorescence
- High transparency
- Gas-permeable film base
- Optimal growth
- Ideal for microscopic analyses

### Cells simply grow better

The gas permeability of the film base of the lumox® products offers numerous advantages. The cells grow directly at the border between the gaseous and liquid phase, where the culture medium cannot act as a diffusion barrier. Exceptionally short diffusion paths ensure an optimal gas exchange. While the cells are directly supplied with oxygen, metabolic waste products such as CO₂ can escape.

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**lumox® dish • Gas-permeable cell culture dish**

Lumox® dish is made of a transparent polystyrene cover and a polystyrene frame with a transparent base made of the gas-permeable, ultra-thin (25 µm) lumox® film. Lumox® dish is available with a diameter of 35 mm and 50 mm.

- Two different growth surfaces:
  - red = for adherent cells
  - green = for suspension cells

For further analyses, like e.g. electron microscopy, the lumox® film can be excised using a scalpel.

#### Ordering information – lumox® dish

<table>
<thead>
<tr>
<th>Order no</th>
<th>Description</th>
<th>Surface*</th>
<th>Diameter/height [mm]</th>
<th>Working volume [ml]</th>
<th>Packaging inner box/case</th>
</tr>
</thead>
<tbody>
<tr>
<td>94.6077.333</td>
<td>lumox® dish 35</td>
<td>red</td>
<td>35/6</td>
<td>2.5</td>
<td>50/250</td>
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<tr>
<td>94.6077.331</td>
<td>lumox® dish 35</td>
<td>green</td>
<td>35/6</td>
<td>2.5</td>
<td>50/250</td>
</tr>
<tr>
<td>94.6077.305</td>
<td>lumox® dish 50</td>
<td>red</td>
<td>50/12</td>
<td>5-10</td>
<td>50/200</td>
</tr>
<tr>
<td>94.6077.410</td>
<td>lumox® dish 50</td>
<td>green</td>
<td>50/12</td>
<td>5-10</td>
<td>50/200</td>
</tr>
</tbody>
</table>

#### Lumox® multiwell • Multiwell plate with low autofluorescence

Lumox® multiwell plates consist of a black polystyrene frame (standard dimensions) with a transparent base made from ultra-thin (50 µm), gas-permeable lumox® film. Lumox® multiwell plates are available in 24-Well, 96-Well and 384-Well format.

#### Ordering information – lumox® multiwell

<table>
<thead>
<tr>
<th>Order no</th>
<th>Description</th>
<th>Surface*</th>
<th>Growth surface per well [cm²]</th>
<th>Working volume per well [µl]</th>
<th>Packaging pcs./case</th>
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</thead>
<tbody>
<tr>
<td>94.6000.014</td>
<td>lumox® multiwell, 24-Well</td>
<td>red</td>
<td>1.90</td>
<td>500 - 1500</td>
<td>4</td>
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<tr>
<td>94.6110.024</td>
<td>lumox® multiwell, 24-Well</td>
<td>green</td>
<td>1.90</td>
<td>500 - 1500</td>
<td>20</td>
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<tr>
<td>94.6000.024</td>
<td>lumox® multiwell, 96-Well</td>
<td>red</td>
<td>0.34</td>
<td>25 - 340</td>
<td>4</td>
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<tr>
<td>94.6120.096</td>
<td>lumox® multiwell, 96-Well</td>
<td>green</td>
<td>0.34</td>
<td>25 - 340</td>
<td>20</td>
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<tr>
<td>94.6000.034</td>
<td>lumox® multiwell, 384-Well</td>
<td>red</td>
<td>0.11</td>
<td>10 - 130</td>
<td>4</td>
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<tr>
<td>94.6130.384</td>
<td>lumox® multiwell, 384-Well</td>
<td>green</td>
<td>0.11</td>
<td>10 - 130</td>
<td>20</td>
</tr>
</tbody>
</table>

* red = adherent cells
The x-well cell culture system allows cultivation and analysis of cells on a microscope slide. In combination with a polystyrene frame, the chamber slides form one- and multiple chamber vessels. Regardless of whether you are carrying out fluorescence- or light microscopic analyses on living or fixated cells, individual analyses or parallel test series, our comprehensive x-well product range provides ideal solutions for your applications:

- Time-saving histological and fluorescent staining because all steps can be carried out in the x-well system.
- Small compartments enable cost efficient testing by reducing cell numbers and reagents.
- Slides with excellent optical properties for optimal results in your cell imaging experiments with living and fixated cells.
- All slide surfaces are suited for the cultivation of adherent cells.
- All x-well cell culture chambers are certified sterile, non-pyrogenic/endotoxin-free and non-cytotoxic.
- The chambers of all products marked “detachable” can be detached from the slide without a tool, leaving no adhesive residues that might have to be removed to enable further test procedures or archiving.
- x-well cell culture chambers are available with slides made of PCA, glass, cover glass or the lumox® film.

x-well PCA • detachable

The slide of the x-well PCA cell culture chambers is made of a plastic from the polyolefin family and has the advantage of lower autofluorescence and higher chemical resistance in comparison with polystyrene.

- Slide in the standard format with writing area
- Low autofluorescence
- High chemical resistance permits use of most staining reagents
- The chamber can be detached from the slide with an audible click – no tool required and leaving no adhesive residues on the slide
- Optimal magnification up to 400-fold (40x objective)

x-well lumox® • detachable

The growth surface of the x-well lumox® specimen slide is made of gas-permeable lumox® film. Due to the outstanding optical properties of the film base, x-well lumox® products are ideally suited for fluorescence-based cell analyses.

- Slide with thin lumox® film (50 µm) in the standard format with writing area
- Very low autofluorescence and high transparency
- The hydrophilic surface and gas permeability provide enhanced cultivation of many sophisticated cells
- High chemical resistance permits use of most staining reagents
- The chamber can be detached from the slide with an audible click – no tool required and leaving no adhesive residues on the slide
- Optimal magnification up to 400-fold (40x objective)

Ordering information – x-well®

<table>
<thead>
<tr>
<th>Format</th>
<th>PCA</th>
<th>lumox®</th>
<th>Glass</th>
<th>Cover glass</th>
<th>Growth surface [cm²]</th>
<th>Volume [ml]</th>
<th>Packaging tray/box</th>
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<tr>
<td>1-well</td>
<td>94.6140.102</td>
<td>94.6150.101</td>
<td>94.6170.102</td>
<td>94.6190.102</td>
<td>9</td>
<td>4</td>
<td>6/96</td>
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<tr>
<td>4-well</td>
<td>94.6140.402</td>
<td>94.6150.401</td>
<td>94.6170.402</td>
<td>94.6190.402</td>
<td>1.9</td>
<td>1</td>
<td>6/96</td>
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<tr>
<td>8-well</td>
<td>94.6140.802</td>
<td>94.6150.801</td>
<td>94.6170.802</td>
<td>94.6190.802</td>
<td>0.8</td>
<td>0.5</td>
<td>6/96</td>
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<tr>
<td>Flask</td>
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<td>-</td>
<td>94.6170.002</td>
<td>94.6190.002</td>
<td>9</td>
<td>4</td>
<td>6/96</td>
</tr>
</tbody>
</table>
quadriPERM® – Cell culture dish for parallel analyses

quadriPERM® is a rectangular cell culture dish suited for a range of applications with the following benefits:

- **Cell culture dish for parallel analyses**
  quadriPERM® has four compartments of equal size for parallel cell cultivation under identical conditions. Suspension cells can be cultivated directly in the quadriPERM®. For the cultivation of adherent cells, x-well products, flexiPERM® or DIN slides can be placed into the compartments.

- **Easy handling**
  In quadriPERM®, cells can be easily and quickly supplied with fresh medium. The outer dimensions of a quadriPERM® dish are in accordance with the ANSI/SLAS (formerly ANSI/SBS) standard so that quadriPERM® dishes – like all Sarstedt TC plates – are conveniently suited for microscopic analyses.

- **Applications**
  Apart from cell cultivation, quadriPERM® is ideal for in-situ preparation of chromosomes for cytogenetic analyses (e.g. replication studies). Also, cells can be fixed and stained in a histological, immunocytochemical or immunofluorescent manner in quadriPERM®. Therefore, quadriPERM® is suited for both parallel analyses and most immunological detection methods.

- **Certified quality**
  quadriPERM® dishes are sterile and certified non-pyrogenic/endotoxin-free and non-cytotoxic.

**Ordering information – quadriPERM®**

<table>
<thead>
<tr>
<th>Order no</th>
<th>Description</th>
<th>Chamber area per unit [cm²]</th>
<th>Working volume per unit [ml]</th>
<th>Packaging bag/box</th>
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<tbody>
<tr>
<td>94.6077.307</td>
<td>quadriPERM®</td>
<td>24.9</td>
<td>approx. 10</td>
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<td>94.6077.308</td>
<td>quadriPERM®</td>
<td>24.9</td>
<td>approx. 10</td>
<td>12/192</td>
</tr>
</tbody>
</table>

flexiPERM® – Reusable cell culture insert

flexiPERM® is a reusable silicone insert which subdivides cell culture dishes and microscope slides into smaller cultivation units. The highly adhesive bottom of flexiPERM® sticks to all plan surfaces, such as glass, plastic or lumox® film.

- **Adhesive, reusable tissue culture chambers made of silicone**
- **Hydrophobic and not toxic for tissue and cells**
- **Heat resistant (up to 125°C), cold resistant (down to -20°C) and resistant to almost all laboratory chemicals**
- **Can be sterilized by autoclaving or 70% ethanol**
- **Suitable for DIN microscope slides and tissue culture dishes**
- **Can be used for long-term tests of up to two weeks**

**Ordering information – flexiPERM®**

<table>
<thead>
<tr>
<th>Order no</th>
<th>Description</th>
<th>Fig. Cultivation units</th>
<th>Cultivation area per unit [cm²]</th>
<th>Working volume [µl]</th>
<th>Packaging unit/case</th>
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<tr>
<td>94.6011.436</td>
<td>flexiPERM® micro 12</td>
<td>1</td>
<td>12</td>
<td>0.3</td>
<td>100–200</td>
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<tr>
<td>94.6032.039</td>
<td>flexiPERM® slide</td>
<td>2</td>
<td>8</td>
<td>0.9</td>
<td>300–500</td>
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<tr>
<td>94.6077.434</td>
<td>flexiPERM® conA</td>
<td>3</td>
<td>1</td>
<td>1.1</td>
<td>1,000–1,500</td>
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<tr>
<td>94.6047.435</td>
<td>flexiPERM® conB</td>
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<td>1</td>
<td>3.1</td>
<td>2,000–3,000</td>
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<tr>
<td>94.6034.067</td>
<td>flexiPERM® disc</td>
<td>5</td>
<td>4</td>
<td>1.8</td>
<td>500–1,000</td>
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</table>
You may also be interested in the following subjects ...

- **Cell and tissue culture**
  - Cell Cultivation, Cryogenic Storage, Filtration, Liquid Handling

- **CryoPure Storage System**
  - Energizing your Cryopreservation

- **miniPERM®**
  - Bioreactor for protein production

- **PCR & Molecular Biology**
  - Liquid Handling

- **Screw Cap Micro Tubes**
  - For transport, storage and sample preparation

- **Low Binding Micro Tubes**
  - Large writing space on frosted, flat lid

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Order No.: 00.20.215
Order No.: 00.20.417
Order No.: 00.20.512
Order No.: 00.20.362
Order No.: 00.20.471
Order No.: 00.20.670

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