Personal Care
Preservatives & Multifunctional Additives
Performance and safety for your products
For over 125 years our business philosophy has had an unwavering focus: hygiene & preservation

Schülke & Mayr GmbH is a chemical and pharmaceutical company. Our products and services protect people and materials against infection and contamination.

Today, more than ever, germs cross borders. Their existence is dangerous, but not as dangerous as the underestimation of their threat to people and material. Taking precautions plays a special role – preventing contaminations and infections is far easier than combating them.

Schülke is fighting diseases and contaminations before they emerge. For this we offer innovative technologies, highly effective products and expert support services.

Our company philosophy is based on a total quality concept that not only considers the quality of our products in the sense of effective product formulas, but one that encompasses a vast array of dimensions; such as:

- workplace safety
- environmental management and
- leadership and cooperation in our quality concept

The demand for total quality at Schülke creates more than economic success. This concept is responsible for a sustainable contribution to the environment and society.

To realise this total quality concept our company values focus on:

- **Partnership**
  Not only in our daily cooperation, but also in the long term, we want to be a dependable partner for our customers worldwide. With expert customer advice and an all-embracing support service, we ensure that the interests of all parties are satisfied. This also applies to our relations with suppliers and other business partners.

- **Initiative**
  Forward thinking and taking action is a major factor of our success. We have to recognise the challenges of the future in order to be able to offer timely solutions. The desire for innovation also ensures our future competitiveness and the company’s success.

- **Reliability**
  Reliability is a prerequisite for successful cooperation as it creates trust, and trust is the basis of long-term partnerships and sustainable success.

Our goal is the continual improvement of products, processes and services in order to ensure economic success, customer satisfaction and corporate social responsibility.
Special Additives International – our expertise from preservation to multifunctional additives

- **Personal Care**
  Our euxyl® brand provides numerous preservative blends for the cosmetic industry. These optimised combinations of active substances offer broad spectrum efficacy, keeping cosmetic products free of microbial growth.
  Our sensiva® and sensidin® brands include versatile, multifunctional skin care additives for personal care products. With their unique properties, they are suitable for use in a wide range of cosmetic applications, including creams, lotions and deodorants.

- **Household**
  Most cleaning products found in households today are water-based systems. These products are prone to microbiological build-up. To be safe for consumers to use, they require the protection of preserving agents. With the parmetol® and grotan® ranges, schülke offers products to preserve a wide range of household applications.

- **Coatings and Building Materials**
  The prevention of microbiological degradation of products containing water is one of the most important challenges now and in future.
  schülke provides modern types of formulated in-can preservatives to protect your products under the brand names parmetol® and grotan®. Furthermore, with distinctive dry film preservatives we keep coated surfaces free from growth of fungi and algae and help to avoid material destruction and visible disfigurement.

- **Metalworking fluids**
  Microbiological spoilage of water-mixed metalworking fluids is one of the biggest threats for quality assurance, work and process safety and in the mass production of metal parts; for example in the automotive industry. With the grotan® product line, schülke offers the metalworking industry a complete range of tailor-made biocides for all possible applications; such as preservation of metalworking fluid concentrates, post treatment of water mixed metalworking fluids and microbiocidal system cleaners.

- **MQM**
  We support our customers with a comprehensive concept of Microbiological Quality Management (MQM) including lab services, application advice, plant audits and training programs for employees. It is not only a matter of eliminating the risk of infections for people, but also of protecting products and equipment from contamination.
Personal Care –
Protects your products, cares for skin

Our brands euxyl®, sensiva® and sensidin® safeguard the high quality of your cosmetic products. They include a broad range of products from preservatives to multifunctional additives. The liquid concentrates are easy to process and contain optimised combinations of various active ingredients and excipients that have been specifically developed for the complex demands of cosmetic formulations. On request we also offer comprehensive concepts for microbiologically safe cosmetic products and are happy to answer any questions you may have.

**euxyl® – clear performance**
Always a big challenge in cosmetics production: protection from microbial contamination. Safe preservation of products is a top-ranking concern. euxyl® has a broad range of action that provides optimal protection for your products and complies in full with current technical and regulatory market requirements. The combination of active ingredients reliably meets all requirements for material, environmental and consumer protection.

**sensiva® – pure sensation**
Active in so many ways: the multifunctional additives in sensiva® products. They improve the skincare properties of cosmetic formulations, stabilise preservative-free products and increase the antimicrobial efficacy of preservatives by boosting. sensiva® products also combat odour-forming bacteria, making them an effective active ingredient in deodorants. Thanks to its diverse functions sensiva® enables development of innovative products.

**sensidin® DO – pure freshness**
A combination product specifically developed for deodorants: sensidin® DO combines the known deodorant and skincare properties of ethylhexylglycerin with the antimicrobial properties of octenidine HCl. The combination prevents the growth and proliferation of bacteria that cause odour on the skin.

Range of application for our products
- **Leave-On**
- **Rinse-Off**
- **Wet Wipes**
- **Deodorant**
- **Sensitive**

**More than a century of competence in preservation and hygiene...**

<table>
<thead>
<tr>
<th>Year</th>
<th>Event</th>
</tr>
</thead>
<tbody>
<tr>
<td>1924</td>
<td>First chemical-technical preservative for glues: grotan®</td>
</tr>
<tr>
<td>1950</td>
<td>Introduction of an antiviral disinfectant</td>
</tr>
<tr>
<td>1960</td>
<td>Introduction of parmetol® preservatives for paints, glues, etc.</td>
</tr>
<tr>
<td>1960</td>
<td>Introduction of the first preservative for cooling lubricants: grotan® BK</td>
</tr>
</tbody>
</table>
Preservatives for Cosmetics & Toiletries

There are a number of factors to consider when choosing a preservative for your formula – different ingredients in the formula, pH value, type of packaging, countries where the product is to be sold, company policy – to name a few.

The large number of possible microorganisms, different packaging and storage conditions and the enormous diversity of raw materials used in cosmetics and toiletries imposes demands that cannot be met by just one substance used at an acceptable dosage.

With the euxyl® product line schülke has developed a wide range of multi component preservative systems. The optimum combination of different active substances offers broad spectrum efficacy, reduces the potential of adverse toxicological findings, gives handling advantages and last but not least offers cost savings.

**product benefits:**
- broad, balanced spectrum of effect against bacteria, yeast and mould
- liquid formulations
- easy and safe to use
- effective over wide pH ranges

**euxyl® – preservation according to your needs**

<table>
<thead>
<tr>
<th>1965</th>
<th>First aldehyde-based disinfectant</th>
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<tr>
<td>1970</td>
<td>First patented preservative for water-based emulsion paints: parmetol® A 23</td>
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<tr>
<td>1975</td>
<td>gigasept® – the first HBV-effective disinfectant</td>
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<tr>
<td>1976</td>
<td>Introduction of gotnar 71®, a biocide for diesel fuels</td>
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<td>product</td>
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<td>Phenoxyethanol, Ethylhexylglycerin</td>
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<td>euxyl® K 145</td>
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<td>euxyl® K 500</td>
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</tr>
<tr>
<td>euxyl® K 510</td>
<td>DMDM Hydantoin, Methylchloroisothiazolinone/ Methylisothiazolinone 1)</td>
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</tbody>
</table>

1) Active ingredients without auxiliaries. For full INCI declaration kindly contact us.
2) The efficacy will be reduced with ethoxylated surfactants
3) Substance in the EU under discussion
<table>
<thead>
<tr>
<th>use</th>
<th>acc. schülke recommendation</th>
<th>acc. EU Cosmetics Regulation</th>
<th>acc. ASEAN Cosmetics Directive</th>
<th>acc. CIR (USA)</th>
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</table>

Recommended use-concentrations are based on average active content. Please pay attention to the corresponding certificate of analysis.
# Preservatives for Cosmetics & Toiletries

<table>
<thead>
<tr>
<th>product</th>
<th>EU INCI declaration</th>
<th>application</th>
<th>pH range</th>
<th>max. temperature</th>
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<tr>
<td><strong>euxyl® K 700</strong></td>
<td>Phenoxyethanol, Benzyl Alcohol, Potassium Sorbate, Aqua, Tocopherol</td>
<td>Leave-On</td>
<td>&lt; 5.5</td>
<td>80 °C (max. 4 hours)</td>
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<td></td>
<td></td>
<td>Rinse-Off</td>
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<td></td>
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<tr>
<td></td>
<td></td>
<td>Wet Wipes</td>
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<tr>
<td></td>
<td></td>
<td>Sensitive</td>
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<tr>
<td><strong>euxyl® K 701</strong></td>
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<td>Wet Wipes</td>
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<td><strong>euxyl® K 702</strong></td>
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<td>&lt; 6</td>
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<tr>
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<td>Wet Wipes</td>
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<td>Sensitive</td>
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<tr>
<td><strong>euxyl® K 712</strong></td>
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<td><strong>euxyl® K 900</strong></td>
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<td><strong>s&amp;m Bronopol</strong></td>
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<td>Rinse-Off</td>
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</tbody>
</table>

1) Active ingredients without auxiliaries. For full INCI declaration kindly contact us.
2) The efficacy will be reduced with ethoxylated surfactants
3) Substance in the EU under discussion
## Recommended use-concentrations

<table>
<thead>
<tr>
<th>Use</th>
<th>acc. schülke recommendation</th>
<th>acc. EU Cosmetics Regulation</th>
<th>acc. ASEAN Cosmetics Directive</th>
<th>acc. CIR (USA)</th>
<th>Product</th>
</tr>
</thead>
<tbody>
<tr>
<td>Leave-on products</td>
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<td>Leave-on products</td>
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<td>max. 1.11 %</td>
<td>max. 11.11 %</td>
<td></td>
</tr>
<tr>
<td>Leave-on products</td>
<td>0.40 – 1.20 %</td>
<td>max. 1.23 %</td>
<td>max. 1.23 %</td>
<td>max. 10.00 %</td>
<td>euxyl® K 903</td>
</tr>
<tr>
<td>Rinse-off products</td>
<td>0.40 – 1.20 %</td>
<td>max. 1.23 %</td>
<td>max. 1.23 %</td>
<td>max. 10.00 %</td>
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<tr>
<td>Leave-on products</td>
<td>0.50 – 1.50 %</td>
<td>2.50 %</td>
<td>2.50 %</td>
<td>2.50 %</td>
<td>euxyl® K 940</td>
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<tr>
<td>Rinse-off products</td>
<td>0.50 – 1.50 %</td>
<td>2.50 %</td>
<td>2.50 %</td>
<td>2.50 %</td>
<td></td>
</tr>
<tr>
<td>Leave-on products</td>
<td>max. 1.00 %</td>
<td>max. 1.00 %</td>
<td>max. 1.00 %</td>
<td>max. 1.00 %</td>
<td>s&amp;m Phenoxyethanol</td>
</tr>
<tr>
<td>Rinse-off products</td>
<td>max. 1.00 %</td>
<td>max. 1.00 %</td>
<td>max. 1.00 %</td>
<td>max. 1.00 %</td>
<td></td>
</tr>
<tr>
<td>Leave-on products</td>
<td>max. 0.40 %</td>
<td>max. 0.4 % (acid) for 1 ester</td>
<td>max. 0.4 %</td>
<td>max. 0.4 %</td>
<td>s&amp;m Methylparaben</td>
</tr>
<tr>
<td>Rinse-off products</td>
<td>max. 0.40 %</td>
<td>max. 0.4 % (acid) for mixture of esters</td>
<td>max. 0.4 %</td>
<td>max. 0.4 %</td>
<td></td>
</tr>
<tr>
<td>Leave-on products</td>
<td>max. 0.14 %</td>
<td>max. 0.14 % (acid)</td>
<td>max. 0.4 %</td>
<td>max. 0.4 %</td>
<td>s&amp;m Propylparaben</td>
</tr>
<tr>
<td>Rinse-off products</td>
<td>max. 0.14 %</td>
<td>max. 0.14 % (acid)</td>
<td>max. 0.4 %</td>
<td>max. 0.4 %</td>
<td></td>
</tr>
<tr>
<td>Leave-on products</td>
<td>max. 0.10 %</td>
<td>max. 0.10 %</td>
<td>max. 0.10 %</td>
<td>max. 0.10 %</td>
<td>s&amp;m Bronopol</td>
</tr>
<tr>
<td>Rinse-off products</td>
<td>max. 0.10 %</td>
<td>max. 0.10 %</td>
<td>max. 0.10 %</td>
<td>max. 0.10 %</td>
<td></td>
</tr>
</tbody>
</table>

Recommended use-concentrations are based on average active content. Please pay attention to the corresponding certificate of analysis.
Ethylhexylglycerin is a synthetic representative of the 1-alkyl glycerine ethers with a high degree of purity. Substances with a similar structure occur in nature. These alkoxylipids are widely distributed in human and animal tissue. High levels of the neutral alkoxylipids are present in the liver of cartilaginous fish. Batyl alcohol and selachyl alcohol have been isolated from the non-saponifiable proportions of liver oils of sharks and rays. Chimyl alcohol has been found in the liver of the sea rat (Chimaera monstrosa). All of these are 1-alkyl glycerin ethers, namely octadecyl-, hexadecyl- and 9-octadecenyl glycerol.

Ethylhexylglycerin is the result of the systematic study of substances in the 1-alkyl glycerine ether class of compounds. It is very stable, e.g. against hydrolysis and elevated temperature, and compatible with cosmetic ingredients. It is a crystal-clear, colourless liquid with a slight characteristic odour.

**product benefits:**
- multifunctional cosmetic ingredient
- skin care additive
- medium spreading emollient
- improves skin feel of cosmetic formulations
- deodorant active
- booster of cosmetic alcohols and glycols
- enhancer for traditional preservative systems
- boosting and fixating of fragrance ingredients

**sensiva® SC 50 – approved for pure performance**

sensiva® SC 50, pure Ethylhexylglycerin, is a globally approved, versatile and multifunctional additive, as well as a very effective deodorant active. As an emollient, it improves the skin feel of cosmetic formulations. sensiva® SC 50 reliably inhibits the growth and multiplication of odour-causing bacteria, while at the same time not affecting the beneficial skin flora. Additionally, it can boost the efficacy of traditional preservatives and act as anti-microbial stabiliser in combination with other cosmetic ingredients.
sensiva® – pure sensation

With the brand sensiva® we offer multifunctional additives for the personal care market. These products have various properties and help to improve the wellness of the consumer. sensiva® stands for multifunctionality and innovation for your products.

sensiva® improves the skin feel of cosmetic formulations and reduces the tackiness. In addition to that it is effective against odour causing germs. sensiva® acts as a booster, it increases the antimicrobial efficacy of preservatives.

sensiva® SC 10 – designed for your innovations

sensiva® SC 10 is a multifunctional cosmetic additive based on ethylhexylglycerin and caprylyl glycol. Its unique properties make it suitable for use in a wide range of cosmetic applications. It combines the excellent skin care and deodorising properties of ethylhexylglycerin with the moisturising and antimicrobial properties of caprylyl glycol. sensiva® SC 10 is a mild humectant and skin emollient with a unique skin feel. Additionally, it can contribute to the antimicrobial stability of cosmetic formulations. It can also be used to improve the efficacy of traditional cosmetic preservatives, such as parabens or phenoxyethanol.

product benefits:
• versatile skin care additive
• applicable in a wide variety of cosmetic products
• mild humectant and emollient
• booster for traditional preservative actives
• antimicrobial stabiliser blend

sensiva® PA 20 – based on nature-identical phenethyl alcohol

sensiva® PA 20 combines the excellent skin care and deodorising properties of ethylhexylglycerin with the antimicrobial properties of phenethyl alcohol.

Phenethyl alcohol is a nature-identical fragrance ingredient with a mild flowery rose-like scent which can mask possible unpleasant odours of other ingredients. Its antimicrobial properties are enhanced by the boosting effect of ethylhexylglycerin. Due to its unique properties the use of sensiva® PA 20 is possible in most cosmetic applications. sensiva® PA 20 is suitable as an antimicrobial stabiliser for preservative-free cosmetics.

product benefits:
• synergistic blend of phenethyl alcohol and ethylhexylglycerin
• applicable in a wide variety of cosmetic products
• antimicrobial stabiliser blend
• effective against odour-causing bacteria
• mild humectant
• enhancer for traditional preservatives
Multifunctional Skin Care Additives

sensiva® PA 30 – natural by design

Half natural, half nature-identical, sensiva® PA 30 is the perfect protection for your formulation. This synergistic blend combines the antimicrobial activity of two nature-identical fragrance ingredients, phenethyl alcohol and undecyl alcohol, with the boosting and skin care properties of naturally derived propanediol. The moisturiser propanediol improves the skin feel of formulations while enhancing the efficacy of antimicrobial components. Undecyl alcohol acts as an excellent booster for the antimicrobial properties of phenethyl alcohol and significantly reduces its flowery, rose-like scent (patent pending). The faint scent of sensiva® PA 30 can mask possible unpleasant odours of other ingredients in formulations.

sensiva® PA 30 can effectively stabilise cosmetic formulations against typical microbiological contamination. The combination of naturally-derived and nature-identical ingredients makes it an excellent choice for nature-inspired cosmetics.

product benefits:
- based on natural and nature-identical ingredients
- antimicrobial stabiliser blend
- enhancer for soft preservative systems
- effective against odour-causing bacteria
- mild humectant and emollient
- blend with reduced scent of phenethyl alcohol

sensiva® PA 40 – efficient by design

Like the wings on maple seeds that boost seed dispersal, natural evolution produces organisms uniquely suited for their environment or function. Inspired by this efficiency, schülke has created an antimicrobial stabiliser blend uniquely suited for your leave-on, wet wipe and sensitive formulas. This synergistic blend combines the antimicrobial activity of phenylpropanol and caprylyl glycol with the boosting and skin care properties of naturally-derived propanediol. The mild moisturiser propanediol improves the skin feel of formulations while enhancing the efficacy of antimicrobial components. Caprylyl glycol acts as an excellent booster for the antimicrobial properties of nature-identical fragrance ingredient phenylpropanol. Additionally sensiva® PA 40 provides a very faint flowery scent which can mask possible unpleasant odours of other ingredients in formulations.

sensiva® PA 40 is highly effective. Used at levels of 0.5% - 1.5% sensiva® PA 40 can stabilise cosmetic formulations against typical microbiological contamination.

product benefits:
- multifunctional cosmetic ingredient
- antimicrobial stabiliser blend
- enhancer for soft preservative systems
- highly effective at low use levels
- active against odour-causing bacteria
- mild humectant and emollient
Deodorant Actives

<table>
<thead>
<tr>
<th>product</th>
<th>INCI declaration</th>
<th>application</th>
<th>pH-range</th>
<th>max. temperature</th>
<th>use</th>
<th>use concentration</th>
</tr>
</thead>
<tbody>
<tr>
<td>sensiva® SC 50</td>
<td>Ethylhexylglycerin</td>
<td>Deodorant</td>
<td>&lt; 12</td>
<td>120 °C</td>
<td>Roll-on, Spray, Stick</td>
<td>0.3 – 1.0 %</td>
</tr>
<tr>
<td>sensidin® DO</td>
<td>Propylene Glycol, Ethylhexylglycerin, Octenidine HCl</td>
<td>Deodorant</td>
<td>&lt; 12</td>
<td>120 °C</td>
<td>Roll-on, Spray</td>
<td>0.5 – 1.0 %</td>
</tr>
</tbody>
</table>

sensidin® DO – pure freshness

sensidin® DO combines the well-known deodorant and skin care properties of ethylhexylglycerin with the antimicrobial properties of octenidine HCl. The synergistic combination of these active ingredients provides good efficacy in deodorants at very low use concentrations. In order to achieve practicable use concentrations for deodorants this combination has been diluted with the widely-used solvent and humectant, propylene glycol. sensidin® DO reliably inhibits the growth and multiplication of odour-causing bacteria on the skin. sensidin® DO is a clear, colourless to light yellow liquid concentrate, with a slight characteristic odour.

**product benefits:**
- synergistic combination of ethylhexylglycerin and octenidine HCl
- effective against odour-causing bacteria
- applicable in underarm and foot deodorants
- gentle to the skin
- practically odourless and colourless liquid
Plant Hygiene Support

More than a century of competence in preservation and hygiene...

Grotanol® SR 2 – the reliable system cleaner

Ensuring reliable product quality also includes a regular cleaning and microbiological sanitation of the production plant. Grotanol® SR 2 is a mild alkaline system cleaner (pH 10) which provides a good immediate effect at a low use concentration in combination with mechanical cleaning.

**product benefits:**
- excellent cleaning effect
- broad, balanced spectrum of effect against bacteria, yeast and moulds
- fast acting
- extremely low use concentration
- excellent material compatibility
- low foaming

**use / use concentrations:**
- production plants, circulating systems and equipment: 2.5 – 7.5 g/kg (0.25 – 0.75 %) in aqueous solutions

Grotanol® 3025 – the formaldehyde-free sanitizer

Grotanol® 3025 is a low-foaming, formaldehyde-free sanitizing concentrate based on aldehyde compounds. Grotanol® 3025 has a balanced spectrum of effect against bacteria and fungi. Grotanol® 3025 is intended for use in the cosmetic industry for microbiological sanitizing of surfaces, plant and apparatus. Use-solutions of Grotanol® 3025 can be stored for several months.

**product benefits:**
- formaldehyde-free
- broad spectrum of effect
- low-foaming, therefore also suitable for plant sanitization in pumped circulation
- can be rinsed off without leaving residue (if rinsing is necessary)
- neutral pH value
- extensively tested material compatibility
- miscible with alkaline, anionic and non-ionic cleaning agents in the dilution for use

**use / use concentrations:**
- production plants, circulating systems and equipment: 5 – 15 g/kg (0.5 – 1.5 %) in aqueous solutions

Use biocides safely. Always read the label and product information before use.
mikrocount® – the convenient hygiene monitoring system

In addition to production hygiene measures, quality assurance concepts require routine hygiene monitoring during the production process and documentation of the results. The dip slide, mikrocount® combi provides every operation with individual means of rapid and reliable hygiene controls.

**product benefits of mikrocount® combi:**
- fast, safe and easy
- control of raw materials intermediate and finished products
- separate evaluation of bacteria, yeast and moulds on different agar surface

**cultura® – the versatile small incubator**

The cultura® incubator is compact and versatile enough for almost any laboratory or manufacturing setting. Results for bacteria are available after 24 to 48 hours. The detection of yeast and moulds takes slightly longer (72 hours).

**product benefits:**
- compact enough to use almost anywhere
- easy temperature adjustment
- designed for use with mikrocount® combi

Further information

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- Denmark
- Egypt
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- Finland
- Ghana
- Greece
- Hong Kong
- Hungary
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- Indonesia
- Iran
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- Japan
- Jordan
- Kazakhstan
- Korea
- Kuwait
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- Lebanon
- Lithuania
- Malaysia
- Malta
- Macedonia
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