schülke

Wet Wipes

Performance and safety for your products

Your Partner in Hygiene and Preservation

schülke

For over 115 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 realize 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-encompassing 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 recognize 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.

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

1889
Foundation of the company by Rudolf Schülke & Julius Mayr in Hamburg.
Presentation of the first ever branded disinfectant in the world – lysol®

1892
Successful combating of the Hamburg cholera epidemic with lysol®

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® brand includes 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 work-, process safety and quality assurance 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.

1892
Schülke & Mayr issues its own series of postage stamps for the export business in German East Africa

1913
Market launch of sagrotan®, the world's first household disinfectant.

1920
Introduction of a disinfectant to combat tuberculosis pathogens

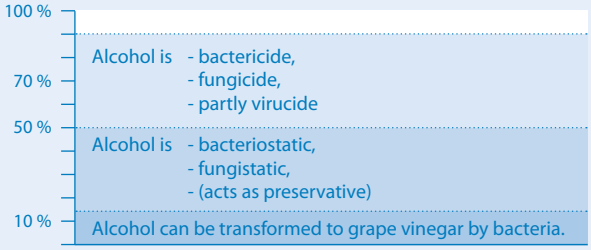
The need for preservation in wet tissues.

Wet tissues are an excellent source of growth for bacteria, yeast and mould.
Environmental requirements e.g. from the EU Detergent Directive to use only biodegradable detergents increase the susceptibility of the wet tissues to microbial infection.

The demand for flushable wipes and the increased use of natural fibres make mould growth with its easily visible staining more likely. To ensure product and consumer safety, the addition of preservatives is necessary; but also the biocides have to be biodegradable.

Microbial Degradation of Ethanol
Microbiocide and degradable: no conflict!

Dependance on the concentration and usability of bacteria toxicity shown for alcohols (ethanol) as an example.



A preservative must be added, but for environmental reasons the preservative should be biodegradable too. This is no conflict; for example a concentration of ethanol between 50 and 90 % it is a good disinfectant, between 13 and 50 % it acts as preservative, but below 13 % ethanol will be biologically degraded to acetic acid.

Selection of preservatives

When selecting preservatives for wet tissues a number of factors have to be considered. Legislation is an essential issue. Cosmetic wipes marketed in the European Union have to be in compliance with the Cosmetics Directive 76/768/EEC and the New Cosmetic Products Regulation 1223/2009, which applies latest 11 July 2013. Wet tissues claimed to cleanse hard surfaces have to be preserved according to the Biocidal Product Directive (BPD). The scope of the BPD is very wide and covers disinfectants for home and industrial use as well as preservatives for manufactured and natural products.

Further parameters to consider when choosing a preservative for wet tissues are for example quality of raw materials and substrate, formulation of the wet tissue liquid, 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, storage conditions and the enormous diversity of raw materials used impose demands that cannot be met by just one active ingredient used at an acceptable dosage.

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.

More than a century of competence in preservation and hygiene…

1924
First chemical-technical preservative for glues: grotan®

1950
Introduction of an antiviral disinfectant

1960
Introduction of parmetol® preservatives for paints, glues, etc.

Preservatives for Cosmetic Wipes

euxyl® – preservation according to your needs

The euxyl® range, developed by schülke for cosmetic preservation, fulfils the legal requirements in the European Union and follows CIR recommendations in the US. The euxyl® range also provides solutions for cosmetic products requiring Japan approval.
Another important issue for the choice of a preservative is the application of the wet wipe. Special attention is necessary for baby products, wet toilet paper, products for oral hygiene or products used near the eye. As these are sensitive skin areas, preservatives with a low sensitisation potential should be used. Further influencing factors on the preservative system are other ingredients in the formula or the packaging material, which might lead to incompatibilities and could therefore disturb the efficacy of the preservative over the entire shelf life of the product. Often marketing aspects like „free of" i.e. halogenated compounds, not animal tested or positive assessment in test magazines will influence the decision for a preservative.
There is no single preservative meeting all requested criteria completely. Fortunately the euxyl® range offers various preservative blends with a broad spectrum of features.

euxyl® PE 9010 – developed for mild skin care

Phenoxyethanol is a familiar and well accepted cosmetic preservative. The addition of ethylhexylglycerin enhances the efficacy of phenoxyethanol. The innovative, multifunctional additive affects the interfacial tension at the cell membrane of microorganisms, improving the preservative activity of phenoxyethanol.

euxyl® K 702 – the synergistic combination

This sophisticated formulation shows good efficacy and skin tolerance.
Attention should be paid to the pH value when using euxyl® K 702. It should be ≤ pH 5.5, as only the free acids act as preservatives. The efficacy is increased by reducing the pH value.

The pH value is a critical control point for all preservatives based on organic acids. The influence of the substrate type and quality should not be underestimated, especially airlaid can influence the pH. Therefore the pH value should not only be measured in the wet tissue liquid.

product benefits of euxyl® at a glance:

- broad, balanced spectrum of efficacy against bacteria, yeast and mould
- liquid stabilised formulations
- easy and safe to use
- sustainable effectiveness even at higher pH values and temperatures
- compliance with todays and future legal requirements, e.g. EU Cosmetics Directive, EU Cosmetic Products Regulation, REACH, etc.

1960
Introduction of the first preservative for cooling lubricants: grotan® BK

1965
First aldehyde-based disinfectant

1970
First patented preservative for water-based emulsion paints: parmetol® A 23

Preservatives for Cosmetics Wipes

product	EU INCI declaration	pH range	max. temperature during production
euxyl® PE 9010	Phenoxyethanol, Ethylhexylglycerin	< 12	stable
euxyl® K 100	Benzyl Alcohol, Methylchloroisothiazolinone/ Methylisothiazolinone *)	< 8	40 °C
euxyl® K 120	Methylchloroisothiazolinone/ Methylisothiazolinone *)	< 8	40 °C
euxyl® K 145	2-Bromo-2-nitropropane-1,3diol, Methylchloroisothiazolinone/ Methylisothiazolinone *)	< 8	40 °C
euxyl® K 220	Ethylhexylglycerin, Methylisothiazolinone, Aqua	< 10	40 °C
euxyl® K 320	Phenoxyethanol, Methylparaben, Ethylparaben, Propylene Glycol	< 8	80 °C
euxyl® K 340	Phenoxyethanol, Methylparaben, Ethylparaben, Propylparaben, Butylparaben	< 8	80 °C
euxyl® K 350	Phenoxyethanol, Methylparaben, Ethylparaben, Propylene Glycol, Ethylhexylglycerin	< 8	80 °C
euxyl® K 500	Aqua, Diazolidinyl Urea, Sodium Benzoate, Potassium Sorbate	< 7	80 °C (max. 4 hours)
euxyl® K 510	DMDM Hydantoin, Methylchloroisothiazolinone / Methylisothiazolinone *)	< 8	40 °C
euxyl® K 700	Phenoxyethanol, Benzyl Alcohol, Potassium Sorbate, Aqua, Tocopherol	< 5.5	80 °C (max. 4 hours)
euxyl® K 701	Phenoxyethanol, Benzoic Acid, Dehydroacetic Acid, Ethylhexylglycerin	< 6	80 °C (max. 4 hours)
euxyl® K 702	Phenoxyethanol, Benzoic Acid, Dehydroacetic Acid, Aqua, Ethylhexylglycerin, Polyaminopropyl Biguanide	< 6	80 °C (max. 4 hours)
euxyl® K 703	Phenoxyethanol, Benzoic Acid, Dehydroacetic Acid	< 6	80 °C (max. 4 hours)
euxyl® K 712	Aqua, Sodium Benzoate, Potassium Sorbate	< 5.5	80 °C (max. 4 hours)
s&m Phenoxyethanol	Phenoxyethanol	< 12	stable

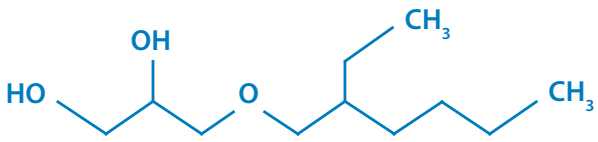
*) Active ingredients without auxiliaries. For full INCI declaration kindly contact us.
**) Use of CMI/MI in leave-on applications in the EU under discussion.

use-concentrations			recommendation for sensitive applications			product
acc. schülke recommendation	acc. EU and ASEAN Cosmetics Directive	acc. CIR (USA)	baby care	facial care	wet toilet paper	
0.50 – 1.00 %	max. 1.10 %	max. 5.50 %	√	√	√	**euxyl® PE 9010**
0.05 – 0.10 %	max. 0.21 % **)	max. 0.10 %				**euxyl® K 100**
max. 0.05 %	max. 0.10 % **)	max. 0.05 %				**euxyl® K 120**
0.05 – 0.15 %	max. 0.30 % **)	max. 0.15 %				**euxyl® K 145**
0.05 – 0.12 %	max. 0.13 %	max. 0.13 %	√	√	√	**euxyl® K 220**
0.50 – 1.40 %	max. 1.42 %	max. 2.66 %	√	√	√	**euxyl® K 320**
0.50 – 1.20 %	max. 1.39 %	max. 2.70 %		√	√	**euxyl® K 340**
0.50 – 1.40 %	max. 2.00 %	max. 2.66 %	√	√	√	**euxyl® K 350**
0.50 – 1.50 %	max. 2.50 %	max. 2.50 %				**euxyl® K 500**
0.05 – 0.15 %	max. 0.55 % **)	max. 0.27 %				**euxyl® K 510**
0.50 – 1.50 %	max. 3.20 %	max. 16.00 %	√	√	√	**euxyl® K 700**
0.40 – 1.20 %	max. 1.26 %	max. 6.32 %	√	√	√	**euxyl® K 701**
0.20 – 1.00 %	max. 1.35 %	max. 6.76 %	√	√	√	**euxyl® K 702**
0.40 – 1.20 %	max. 1.23 %	max. 6.17 %	√	√	√	**euxyl® K 703**
0.50 – 1.50 %	max. 1.96 %	max. 16.66 %	√	√	√	**euxyl® K 712**
max. 1.00 %	max. 1.00 %	max. 5.00 %	√	√	√	**s&m Phenoxyethanol**

Recommended use-concentrations are based on average active content.
Please pay attention to the corresponding certificate of analysis.

Multifunctional Skin Care Additives

Ethylhexylglycerin



Ethylhexylglycerin is a synthetic representative of the 1-alkyl glycerin 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 monstrasa). 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 glycerin 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.

Ethylhexylglycerin is globally approved for use in cosmetic products. It is commercially available under the brand name sensiva® SC 50.

product benefits of sensiva® at a glance:

- multifunctional cosmetic ingredient
- versatile skin care additive
- medium spreading emollient
- improves skin feel of cosmetic formulations
- effective against odour causing Gram positive bacteria
- booster of cosmetic alcohols and glycols
- enhancer for traditional preservative systems
- globally approved

product	INCI declaration	pH-range	max. temperature during production	use	use concentration
sensiva® SC 50	Ethylhexylglycerin	< 12	stable	Wet-wipes, Leave-on Deodorants	0.3 – 1.0 %
sensiva® SC 10	Ethylhexylglycerin, Caprylyl glycol	< 12	stable	Wet-wipes, Leave-on Deodorants	0.5 – 2.0 %

More than a century of competence in preservation and hygiene…

1975
gigasept® – the first HBV-effective disinfectant

1976
Introduction of grotamar® 71, a biocide for diesel fuels

1978
First schülke preservative for cosmetics: euxyl® K 100

sensiva® SC 50 – approved for pure performance

sensiva® SC 50, pure ethylhexylglycerin, is a versatile and multifunctional additive, as well as a very effective deodorant active.
sensiva® SC 50 reliably inhibits the growth and multiplication of odour-causing bacteria, while at the same time not adversely affecting the skin flora. Sniff tests conducted on products containing sensiva® SC 50 show it to provide good protection against unpleasant body odor for up to 24 hours after the last application.

As an emollient and mild humectant, sensiva® SC 50 improves the skin feel of cosmetic formulations. Additionally, it can increase the antimicrobial efficacy of alcohols and glycols and thus enhance the efficacy of standard preservative systems.
The use of sensiva® SC 50 as an ingredient for deodorants and skin care additive is protected by patents.

sensiva® SC 10 – designed for your innovations

sensiva® SC 10 is a versatile and multifunctional additive based on caprylyl glycol and ethylhexylglycerin. 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 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.

Surface wipes

The preservation of wet tissues used for cleaning surfaces like household and industrial wipes is regulated in Europe under the EU Biocidal Product Directive (BPD).

The parmetol® and grotan® ranges are specially developed for the preservation of household products with regards to legal requirements, specific technical demands and marketing aspects. parmetol® A 26 and parmetol® A 28 S are recommended for these applications.

parmetol® A 28 S, a combination of CMI/MI and Bronopol, has shown excellent results in practice. The low use concentration combined with a low salt content prevents formation of residues. It can even be used in wipes for window cleaning.

If a halogen free preservation system is required grotan® BA 21 is recommended. grotan® BA 21 exhibits the sophisticated synergistic effect of 1,2-benzisothiazol-3(2H)-one and N-(3-amino-propyl)-N-dodecylpropane-1,3-diamine.
It is particularly effective as wipes are normally formulated free of anionic surfactants.

Product benefits of parmetol® and grotan® at a glance:

- broad, balanced spectrum of efficacy against bacteria, yeasts and moulds
- liquid, stabilised formulations
- easy handling, safe application
- sustainable effectiveness even at higher pH values and temperatures
- compliance with today's and future legal requirements, e. g. BPD, REACH, Detergents Regulation, etc.

More than a century of competence in preservation and hygiene…

100 Years

1989
Schülke & Mayr GmbH celebrates its one hundred year anniversary

1991
Introduction of sensiva® SC 50, a skin care additive and deodorant active

Product	Active ingredients (INCI names)	pH range	max. temperature during production	use-concentrations		Eco label	
				acc. schülke recommendation	VOC acc. Directive 2004/42/EC (%)	EU flower	Nordic Swan
grotan® A 12	Laurylamine Dipropylenediamine	< 13	100 °C	0.05 – 0.50 %	0	√	√
grotan® BA 21*2	Benzisothiazolinone, Laurylamine Dipropylenediamine	< 11	100 °C	0.05 – 0.20 %	0	√	√
parmetol® A 26	Methylchloroisothiazolinone/ Methylisothiazolinone, Dimethylol Glycol	< 9.5	40 °C*1	0.05 – 0.20 %	9	√	
parmetol® DF 35	Methylchloroisothiazolinone/ Methylisothiazolinone, Dimethylol Glycol	< 10	40 °C*1	0.05 – 0.15 %	34	√	
parmetol® A 28 S	2-Bromo-2-nitropropane-1,3diol, Methylchloroisothiazolinone/ Methylisothiazolinone	< 8.5	40 °C*1	0.10 – 0.30 %	0	√	
parmetol® D 11	Benzisothiazolinone	< 11	100 °C	0.10 – 0.30 %	0	√	√
parmetol® K 20	Methylchloroisothiazolinone/ Methylisothiazolinone	< 8.5	40 °C*1	0.10 – 0.20 %	0	√	
parmetol® K 60	Methylchloroisothiazolinone/ Methylisothiazolinone, Octylisothiazolinone	< 8.5	40 °C*1	0.01 – 0.04 %	0	√	
parmetol® N 20	2-Bromo-2-nitropropane-1,3diol, Octylisothiazolinone	< 8.5	60 °C	0.10 – 0.30 %	2.5	√	
parmetol® MBS	Methylisothiazolinone, Benzisothiazolinone	< 10	80 °C	0.10 – 0.20 %	0	√	√
s&m bronopol	2-Bromo-2-nitropropane-1,3diol	< 8	40 °C	0.02 – 0.10 %		√	

*1 Up to 60 °C, depending on pH value.

*2 Large quantities of anionic substances may lead to decreased efficacy.

1991/ 92
Introduction of aldehyde-free disinfectants, e. g. terralin® and lysetol® AF

1992
Patented cosmetic preservative based on organic acids: euxyl® K 702

1996
schülke becomes a subsidiary of the Air Liquide Group

Change control

Influential factors

If anything is changed, in the formulation, in the raw material quality, in the production process or in the batch size the change has to be analysed to see if it has an influence on the microbial stability of the formulation. The type of non-woven and the ratio between substrate and wet tissue liquid can have a dramatic influence on the efficiency of the preservative system. If the type or even the supplier of the substrate is changed a revalidation is recommended.

The influence of the non-woven quality

Aqueous wet tissue liquid	Germ count 3 weeks after inoculation		pH value
	on TSA	on SA	
Spunlace, unpreserved	+++ B	+++ Y	5.7
Airspun, unpreserved	++ B	+++ M	5.7
Airlaid, unpreserved	–	–	5.7
Hydraspun, unpreserved	+++ B	+++ Y / + M	5.7

Lotion	Germ count 3 weeks after inoculation		pH value
	on TSA	on SA	
Spunlace, unpreserved	–	–	5.7
Airspun, unpreserved	+ Y	+++ M	5.7
Airlaid, unpreserved	–	–	5.7
Hydraspun, unpreserved	–	–	5.7

Legend:

B = Bacteria
M = Moulds
Sp = Sporeforming bacteria
Y = Yeasts

– = free of microbial growth
+ = slight growth
++ = moderate growth
+++ = massive growth

Minor ingredient changes can have severe influence on the susceptibility to microbial growth. For example perfume composition can be a synergist to the preservative system; one glycol will reduce the active water value more than another; an extract may contain a biocidal compound where another may not.

The same INCI name does not necessarily mean the same compatibility. Often impurities can lead to more incompatibilities than the chemical itself. For example the change from carbomer in powder form to a liquid form has shown dramatic effects. The liquid material contained sulphite impurities generated from the polymerisation process. These impurities destroyed the isothiazolinone content used in the preservation system of the end product. Also sulphonates based on the production process can contain high amounts of sulphite.

The different pH values of raw materials have to be adjusted in the finished product. Otherwise the stability can be influenced or pH value can get out of the active pH range of the preservative actives. The upgrading of a formulation to a larger batch size is not only critical for the galenic properties of emulsions. The bigger batch size leads to a longer heating period which means a good sanitation of raw material contamination but also a possible destruction of biocides.

The longer cooling period can lead to growing conditions for microbes before the preservative is added but also to a better distribution of the preservative in the water phase caused by the longer stirring time. Normally the microbiological challenge test is done during the development of a formulation. A re-validation should be performed with the first production batch. Each change should be secured by a new microbiological test.

Microbiological Quality Management

MQM – protecting the environment and your products

We are convinced that controlled and responsible use of disinfectants and preservatives is the only way to ensure the sustainable protection of man, materials and the environment. schülke not only manufactures preservatives and disinfectants but also offers Microbiological Quality Management as a holistic approach to achieve hygienically-sound products.

On request we can conduct a thorough Hygiene Audit of your operation, train your staff in hygiene practices, provide advice on factory design and compile detailed hygiene plans for your organisation.

If you are interested in taking a comprehensive approach to preventing microbiological contamination and safeguarding your products and processes then we will be pleased to support you.

Life cycle of a wet wipe

production of wet wipe liquid

6 hours

bulk storage

2 weeks

converting

2 hours

storage

30 months

in use

6 months

high risk of contamination

no risk of contamination

2003
schülke Inc.
established in USA

2003
Schülke & Mayr GmbH
established in China

2004
Introduction of grotan® OK, a patented improved version of grotan® OX

Plant Hygiene Support

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. The dip slide can be used for testing raw materials, for in-process controls during the production process and for quality control of finished products.
The mikrocount® combi dip slide enables simple sampling and evaluation of the results even by personnel without any microbiological training.

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. The built in tray has room to hold up to 18 mikrocount® combi dip slide samples. A transparent door allows for viewing of the contents without removing samples from the incubator.

The adjustable temperature is pre-set by the manufacturer to maintain 30 °C, an optimum temperature for incubating mikrocount® dip slides. Results for bacteria are available after 24 to 48 hours. The detection of yeast and moulds takes slightly longer (72 hours).

product benefits of cultura:

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

More than a century of competence in preservation and hygiene…

2004
Patented cosmetic preservative based on Phenoxyethanol and Ethylhexylglycerin: euxyl® PE 9010

2007
Introduction of sensiva® SC 10, a versatile skin care additive

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 of grotanol® SR 2:

- excellent cleaning effect
- broad, balanced spectrum of effect against bacteria, yeasts 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 of grotanol® 3025:

- 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.

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