

COSMETICS
TRENDS
TECHNOLOGY

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CORONA CRISIS

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When aging becomes positive

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“HOW TO INNOVATE WITHIN A LIMITED LIST OF INCI NAMES”

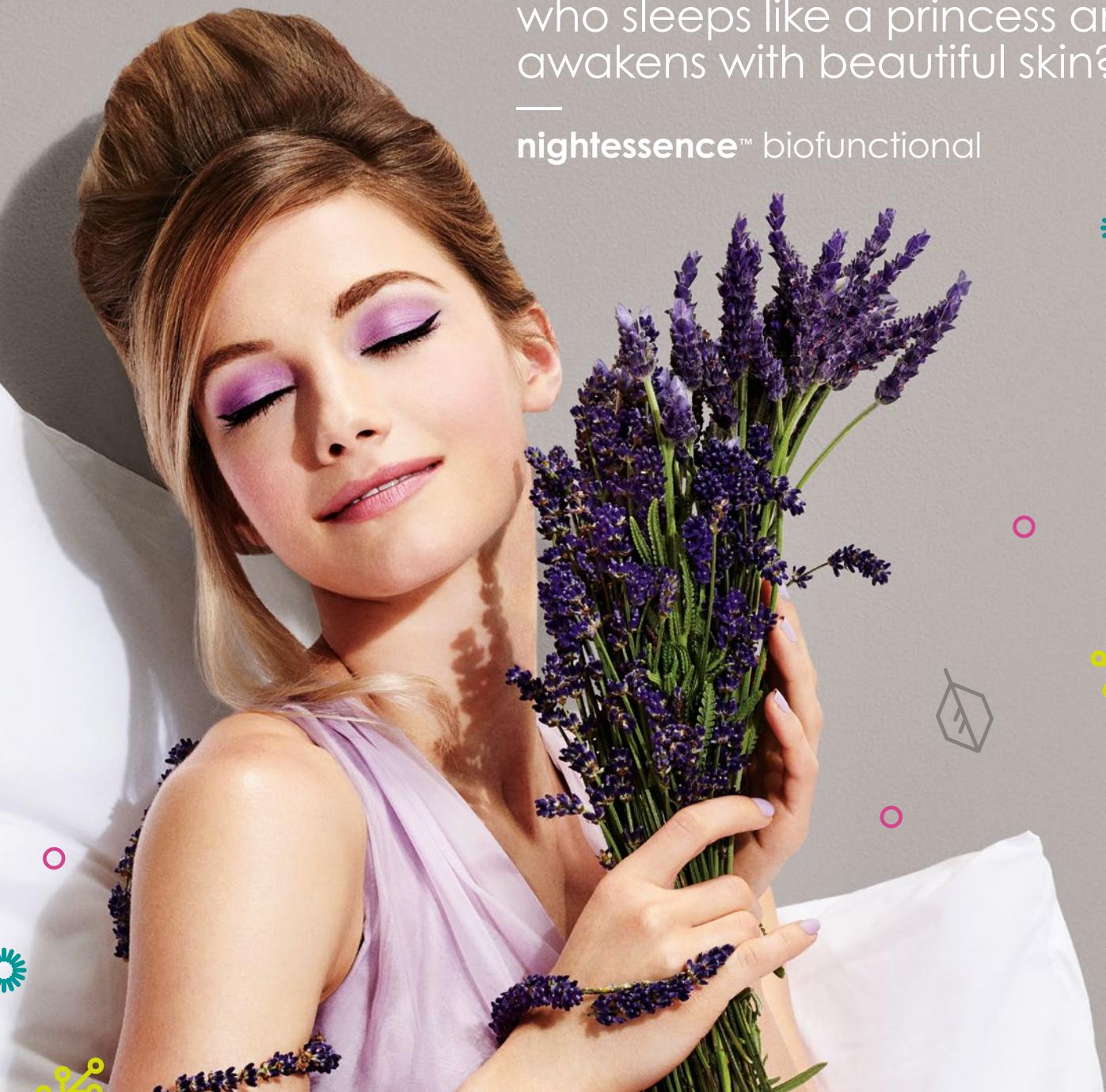
Joel Mantelin, Vice President
Ashland

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2/2020

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EDITORIAL



Sudden changes

Due to SARS-CoV-2, the whole world seems to becoming dislocated. Governments are trying to contain the spread as quickly as possible with a variety of measures. These restrictions, however, affect us and our industry very much. No trade fairs can take place, dates which were scheduled are already being postponed. In some countries, only those companies which can continue to work where employees are able to work in homeoffice. Unemployment and economic crises threaten. Are there only horror reports left? No, not at all. New dates for exhibitions are already being communicated, giving a little visibility in an uncertain time. There are companies who have switched their production from personal care to disinfectants, supplying their local hospitals. There are also those who have made their protective equipment available to medical personnel. In private, music is played on balconies and children paint rainbows on the windows. A ray of hope, I think. As bad as this pandemic is and as terrible as it is to mourn the many deaths, these examples of generosity bring our humanity back to light. Let us continue to stand together, take care of each other and do everything that is necessary to fight this virus.

Stay healthy!

Sincerely yours,

A handwritten signature in blue ink, appearing to read 'Georg von Griesheim'.

Georg von Griesheim,
Managing Director

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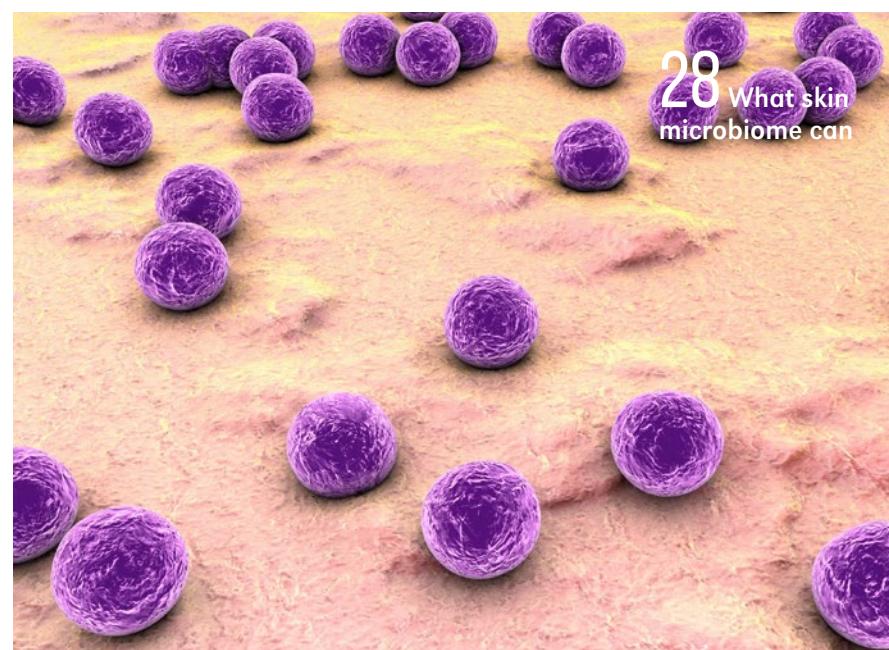
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ROBIN BIELEFELD

Purchasing Manager, Börlind

about the company's latest achievements in sustainable packaging



CHRISTINE WILD

Director International Sales,
Boerlind

about the company's latest achievements in sustainability



ERWIN SCHUSTER

Head of Market Segment
New Markets and APAC, Geka

about his company's innovations in sustainable packaging



STEFANO MEAZZA

CEO of the company Cappadoni

about the complexity of recycling and the company's most recent acquisitions



TIM EAVES

CEO, Quadpack

provides background on their acquisition of the German packaging company Louvrette



JEAN-YVES BOURGEOIS

CEO, JYB Conseils

about the major changes in the packaging industry in the past 5 years



LOG IN AND TAKE FULL ADVANTAGE!

On the COSSMA website, we post lots of additional information related to the topics covered in the magazine. You will find **more than 1,000 useful additional items** to extend your knowledge and understanding: more information on the ingredients and finished products that we cover; market data and statistics; supplier listings; literature references; scientific articles; product formulations and useful base formulations. Search for the topics you are interested in at www.cossma.com

NEWS

REBRANDING

SCHUMACHER PACKAGING | The new production site in the English city of Birmingham is now officially renamed on 1st April 2020. "Jaffabox Ltd" became "Schumacher Packaging Ltd". The company acquired Jaffabox, a manufacturer of various corrugated board packaging solutions that is also family-run, in November 2019. At the same time, a generational shift took place in the family that used to own the company: Annette Amyes is now Managing Director in the Birmingham plant



and her brother Mark has the role of Sales Director. The rebranding of the English plant emphasises that customers from the United Kingdom can now also access the entire range of solutions offered by the European Schumacher Packaging Group – including consultation, services and logistics.

www.schumacher-packaging.com

NEW FACILITIES

NOURYON | Nouryon and Ineos Nitriles have broken ground on new facilities to be built at Ineos' site in Cologne, Germany. The units will produce raw materials for Nouryon's readily biodegradable chelates, used in detergents and other industries. The plants are due to be completed in 2021 – 2022. Demand for chelates has increased strongly following the European ban on phosphates in consumer automatic dishwasher detergents. Chelates in home and personal care applications are more sustainable than the phosphates they replace.

www.nouryon.com



At Ineo's site in Cologne, Germany, new facilities will grow.

Award again

LIPOID KOSMETIK | During the annual sustainability conference in March 2020, EcoVadis honoured the company for its actions in sustainable procurement and Corporate Social Responsibility (CSR) with the "Sustaina-



The company received the EcoVadis award again.

bility Leadership Award" in the category "Small to Medium Enterprises" as "Best Performer Heavy Manufacturing". Evonik has already received Gold Status for its CSR activities four times in a row since 2015.

www.liqid-kosmetik.com



Eduardo M. Molina (Business Director Innohealth), Dr Lisa Maus (Global Director Innovation Management Active Ingredients), Eduardo Muñoz MD PhD (Co-founder of innoHealth), Juan Carlos Guzman (Director General Evonik España y Portugal S.A.U. and Managing Director innoHealth)

EXPANSION OF SKILLS

EVONIK | The company has concluded a purchase agreement to acquire innovativeHealth Group (innoHealth). Headquartered in Madrid, Spain, innoHealth's technology platforms screen and combine natural ingredients and extracts to generate novel dermocosmetic products with synergistic activities. It will be part of Evonik's Care Solutions Business Line. This latest acquisition increases the company's ability to develop unique and tailor-made active ingredients and accelerates time to market.

www.evonik.com

Stronger position

AZELIS | The company is thrilled to announce that it has signed an agreement to acquire 100% shares of CosBond, a Chinese specialty chemicals and food ingredients distributor. Headquartered in Hong Kong, it has offices



Azelis acquires CosBond and strengthens position in Chinese personal care market.

and warehouses in Hong Kong, Shanghai, Guangzhou and Beijing and represents over 30 renowned global principals, predominantly in personal care industry, followed by flavour and fragrance, food and nutrition and fine chemistry.

www.azelis.com

SUDDEN CHANGES

Crisis | In only a few weeks, the SARS-CoV-2 went from a few infections to a global pandemic. Social as well as business life have changed completely. How are the companies coping?

Xavier Susterac, senior vice president Personal Care Europe, BASF

"We are currently experiencing great teamwork and the will to keep up the production of personal care products for daily needs. Our European sites are still operating. However, we are experiencing issues with the supply of some raw materials and challenges due to logistics or reduced personnel. Deliveries may be delayed, and we may not be able to serve all requested volumes. Despite all this, we are supporting local medical institutions at several sites by donations of sanitizers."



Hans Bohnen, chief operating officer and director, Global Emergency Management, Clariant

"In response to the current developments the Clariant Global Emergency Management (GEM) organisation has issued a strong recommendation that office workers in Europe, Middle East and Africa, North America and Latin America work from home or by a split office approach (A/B group shifts). In India the government ordered a complete shutdown. In Asia-Pacific most sites are running, and remote work is recommended. In China, our employees have returned to the office since 30 March, with the obligation of wearing surgical masks."




Staffan Sjöberg, public relation manager, Iggesund

"We are determined to keep production running. Any symptoms qualify employees for paid sick leave. Also, we limited access to production area, and increased cleaning and disinfection. Basically, we try to minimise any manual handling of our products. There is clearly a strong demand for paperboard – even in a crisis. We are keeping our customers informed on product safety in real time."


Matteo Moretti, president, Lumson

"Lumson has adopted all possible measures to prevent the spread of the virus: the use of PPE, sanitisation of the workplace, temperature checks, re-organisation of shifts and non-essential departments, 'smart working'. It also supplied all members of staff with high-protection masks. Lumson donated 2,000 protective suits to Ospedale Maggiore di Crema and supplied masks and medical scrubs to civil protection services. We are living through difficult days, both from the human and work-related point of view, but I'm sure that with the contribution of everyone, we'll be able to make it through".


Tim Eaves, CEO, Quadpack

"With empathy, transparency and a spirit of collaboration we face the coronavirus crisis. Communication is key, and we are keeping all stakeholders updated 24/7. We are all in this together! Most office staff are working from home and our German factories are operating with special safety measures. We are seeing a level of collaboration never seen before. I am proud to see how the Quadpack family is facing the current challenges."


Tony Veer, CEO, The Box

"Both from a personal and business point of view, we take as low a risk as possible. This means very few personal contacts and cleaning everything. When you enter, there is a spray to disinfect your hands. Also, we have given surgical masks to employees, family and friends. We keep the physical distance of 1,5 m minimum all the time. With our team, we try to do damage control, by serving and supporting our customers even better than before. Sometimes even at better prices, to keep the business going for everybody. We have started suggesting to our customers that they use flatter tins, that fit in the mailbox, so they can send products at low cost to people who stay at home."


Rosa Porras Mansilla, marketing and communication manager, Virospack

"Since the beginning of the pandemic, we took all the necessary security measures to protect our employees – with extreme disinfection in our facilities, conditioning sections, and common areas guaranteeing greater distances between workers, postponing international trips, or avoiding unnecessary contacts by having office staff work from home. Keeping these security measures, we have maintained our activity and continued to meet delivery deadlines. Unfortunately, to curb the high spread of Covid-19, the Spanish government has decided to close all non-essential business activities from 30 March until 14 of April – at least."

GO FUTURE

ACTIVE INGREDIENTS

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CONSCIOUS BEAUTY

Ingredients | The demands customers have on their skin care products have changed. Those who buy anti-aging products are getting younger and younger. Francesca Pascucci and Volker Rosenberger also talk about other trends and innovative solutions.



► **Francesca Pascucci**
global marketing manager
Skin Care



Volker Rosenberger
global marketing manager
Skin Care, both DSM,
Kaiseraugst, Switzerland,
www.dsm.org/personalcare

COSSMA: What are the most significant consumer trends in skincare now?

Francesca Pascucci: We've carried out a couple of in-depth market studies in the past 18 months and can now see strands from two key trends coming together. There's the trend for medical beauty, with people willing to embrace cutting-edge science and technology to achieve the looks they desire. This covers cosmetic procedures, such as inject-

ables, but also cosmeceuticals – non-invasive but high efficacy, premium skincare solutions. At the same time, though, demand for cleaner, natural, and socially and environmentally responsible skincare is also growing. Look at the momentum of vegan beauty for example.

In a nutshell, thanks to digital technology, people are becoming more knowledgeable and more discerning about what goes into their skincare products. Today's consumers want

nised as a “clean” option. What’s more, their design and production process is highly sustainable, and they also meet the criteria for vegan products.

At DSM we use molecular modelling, a tool new to cosmetics. Initially from the world of pharma, molecular modeling identifies the potential structural features behind a molecule’s biological activity and takes this as the basis for creating effective skin care actives. We begin by designing and modelling biologically relevant molecules *in silico*, synthesize them, then test small libraries of compounds to identify the most effective. This technique reduces costs and development time. It also helps us understand how products perform at the molecular level, giving us further insights into how different skin actives work within the skin.

Do you see any new potential for peptides in the anti-ageing market?

Francesca Pascucci: One manifestation of the medical beauty trend is that information-savvy younger generations are proactively seeking preventive anti-ageing solutions, much earlier stage. Baby boomers used to start using anti-ageing prod-

ucts around the age of 47; today, the average age is 26. Having noticed this trend, we spoke with consumers via our Consumer Insights Hub and it became clear that many younger women assume they will age facially in a similar way to their mothers. Some even told us that where they could see mimic and expression lines on their own faces, their mothers had developed more defined wrinkles.

We found this interesting so decided to carry out a new study involving both women in the 50-65 age group and in the 21-35 age group, some who were actual mothers and daughters, using a tripeptide¹. This active is proven to reduce the appearance of mimic wrinkles by helping the skin to relax from within. Our latest findings show that it can also help delay the progression of mimic wrinkles if used at an earlier stage in life.

What have been your most exciting developments in the field of skincare?

Volker Rosenberger: We all know that dealing with dry skin can be an uphill battle. It’s important to use good facial and body moisturizers, but it’s equally important to find a proper cleansing product. The problem is ▶

to understand exactly how and why individual actives and ingredients work on the skin. On top of this, broader environmental, health, and societal concerns are also influencing decision making. They require transparent information about how sustainably and ethically different ingredients are sourced or produced, too. We call this phenomenon “Conscious Beauty”.

What kind of skincare solutions or technologies could respond to these trends?

Francesca Pascucci: Synthetic, small molecular weight peptides tick most of the “Conscious Beauty” boxes. These active compounds have a known mode of action and deliver proven results by working within the skin and mimicking its natural processes. This makes them an excellent response to the medical beauty trend, and they are recog-

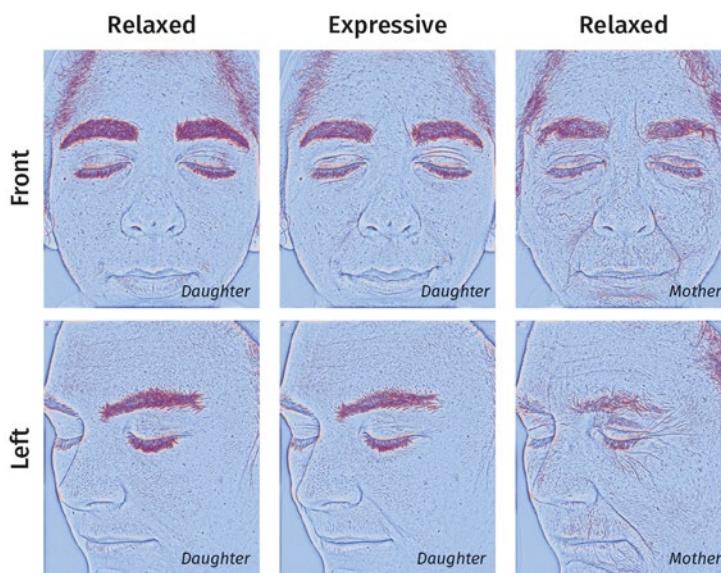


figure 1. The comparison between expression marks among daughters and mothers.

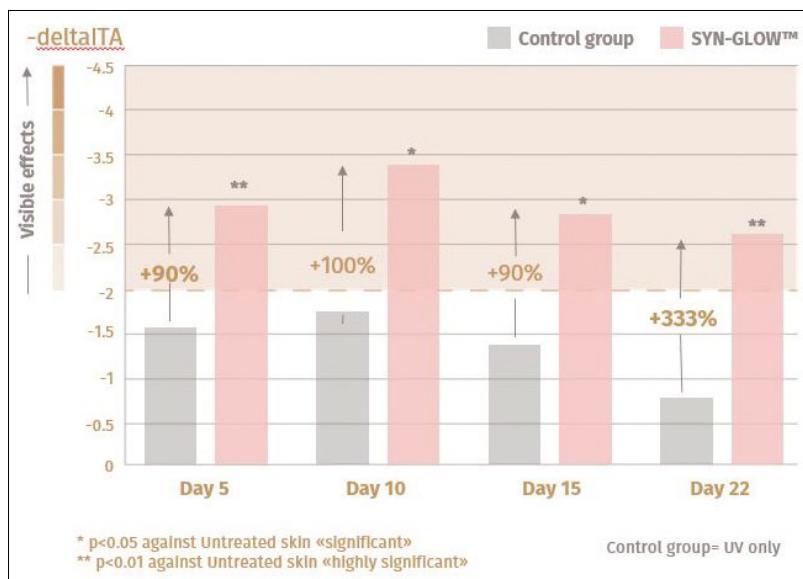


figure 2. Result after four weeks in-vivo study with a tripep-tide

that cleansing can strip moisture from your skin, impair skin barrier function and impact the skin microbiome balance, leaving skin rough and tight, or maybe even reddened, scaly and itchy. In one of our recent surveys, consumers said they want to find a way to overcome these issues and that they are looking for effective skin cleansers that also provide instant and long-lasting moisturization after use.

We have carried out some new studies with a natural moisturizer renowned for its moisture-magnet properties. Our findings prove that common skin cleansing formulations containing this Moisturizer¹

immediately increase skin hydration for 24 hours. We also found that, even with frequent showering, it helps reinforce the skin's barrier while protecting against dryness.

Francesca Pascucci: We see that peptides are appealing to consumers because they work with skin's natural processes and boost them from within. The results they bring are very effective too, so we've been looking for new applications beyond the anti-ageing market.

From speaking to consumers via our Consumer Insights Hub, and based on a survey of more than 6,000 respondents men and women across the globe, we've learned that the

'natural glow' that comes with a suntan, and the appearance of freshness and well-being you have just after a holiday, is something people prize highly. It gives them a confidence boost, so they feel they can go without make up, and also has strong associations with looking healthy.

Consumers would like to have this look all year round. Although self-tanning products and make-up are options, the results tend to be superficial and don't look always authentic.

Tanned skin is an outcome of melanin synthesis, which is a line of defence against photo-ageing. So, we decided to see if a peptide could stimulate the tanning process at the same time as protecting the skin. Our new Pentapeptide³, has a special amino acid sequence and is a highly selective agonist of Melanocortin Receptor-1 (MC1R).

We chose it from a library of more than one hundred peptides both for its MC1R activation efficacy and ability to strengthen skin's natural defences from within, which it does by reducing oxidative stress and boosting DNA repair. It has been proven ex-vivo and in-vivo, with clinical tests showing that it promotes a visible glow and provides a healthy complexion in just five days. These results are long-lasting too, with the benefits still visible at ten and twenty days.

Volunteer is 62 years old

Baseline



Week 4



figure 3. In vivo the pentapeptide delivers visible healthy tone in just five days with long-lasting effect.



What are your latest findings in the field of the facial microbiome?

Volker Rosenberger: The skin microbiome has a lot of resonance with consumers interested in more natural approaches to skin care. As a beauty concept it's certainly gaining traction; you only need to look at the growing number of cosmetic products making specific reference to it, and the many launches of prebiotic, probiotic and postbiotic ingredients. There are still many questions to explore, though, about how the skin interacts with its microbiota and which aspects of these interactions are most relevant to the world of skin care. At DSM, we've combined our knowledge and expertise in skin microbiology and skin science in a unique epidermal microbiome beauty approach⁴ which focuses on the interplay between the epidermis and the skin microbiome in order to explore new ways to preserve, reinforce, and restore healthy skin at its root.

In 2018, for the first time in a single clinical study, our scientists demonstrated a link between changes in the composition of the skin microbiome and changes in normal, dry and oily skin. This research focused on three bacterial species which have an important impact on these skin conditions (*Cutibacterium Acnes*, *Staphylococcus Epidermidis* and *Corynebacterium Kroppenstedtii*) and their distribution on skin before and after application of one of three actives in our current portfolio⁵. Our study found that treatment with these actives could have a beneficial effect on the skin barrier in normal, dry and oily skin. These effects were associated with changes in levels of one or more of the three bacteria.

What potential do you see in the skin microbiome for the development of new ingredients?

Volker Rosenberger: It is a real opportunity for innovation. Our findings so far certainly point to promising potential for next generation skin care. We also see potential in probiotic skincare solutions. Last year DSM took an investment in and began collaborating with S-Biomedic, working with live bacteria to develop products and treatments for skin disorders and has developed a programme focusing on acne-prone skin. In terms of the market, all the evidence from our trends research suggests that the microbiome will become a skincare segment in its own right. Several of DSM's actives have been tested against these criteria and awarded this quality mark. We're delighted with this, because as well as providing formal recognition of our innovation in this field, "Microbiome Friendly" is a label end consumers will be able to relate to. As this segment becomes more established, it's also reassuring for our customers that DSM is ready, with microbiome skincare solutions. □

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2. Pentavtin
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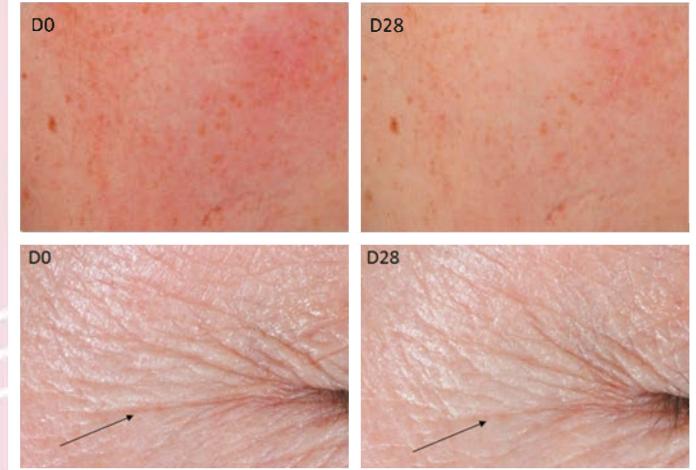


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COLOUR MEETS CARE

Ingredients | Nowadays, it's no longer enough for make-up to perfect the skin's appearance on the surface. Customers expect active ingredients to care for their skin at a deeper level. Dr Sarah Pütsch explains what is suitable for use in colour cosmetics.



► **Dr Sarah Christina Pütsch**,
technical marketing lead, Croda,
Nettetal, Germany,
www.sederma.com

Colour cosmetics have gained enormous popularity and further growth of this market is projected for the coming years (SpecialChem, 2017). Currently, South Korea as the trend setter for colour cosmetics and a lot of beauty trends from this country have entered the European market. In 2017, about two thirds of all cosmetic products launched in South Korea were colour cosmetics, emphasizing their enormous

potential, popularity and market strength. Lip and facial make-up were the most dynamic segments with the highest growth projected within the next five years (Euromonitor International, 2019).

With consumer demand for make-up with skin care benefits increasing, there are numerous opportunities for cosmetic manufacturers to promote the hybridisation of make-up and skin care. The concept is high per-



forming make-up, going beyond simply covering and concealing to really taking care of the skin.

For example, due to the increasing concerns about environmental aggressions, **make-up could act as another layer of protection** through the incorporation of active ingredients, which would provide hydration and protection against pollution. In addition, consumers are constantly striving for a more natural look.

Colour and hydration

For make-up products, skin hydration is an essential element to achieving a flawless, healthy-looking skin. One hydrating active facing the trend around hyaluronic acid, is "Optim Hyal". Since the half-life of hyaluronic acid is less than one day and its synthesis decreases with age, it is essential to trigger the hyaluronic acid renewal. Products with **oligosaccharides from acetylated glucuronic**

acid, have a structure like hyaluronic acid fragments. They stimulate the neosynthesis of the skin's own hyaluronic acid and helps to deliver optimal moisturising and viscoelastic properties by sustaining its turnover. Furthermore, they increase the synthesis of elastin and smoothen the skin's microrelief within a few weeks of application by reducing fine lines and wrinkles (figure 1).

Another active offering excellent moisturising benefits and which can be easily incorporated into powder make-up is "Vegesome moist 24" that is a powder composed of hollow particles from *Lycopodium clavatum*, which are filled with an extract of *Imperata cylindrica* possessing moisturising properties. The active ingredient is progressively released to procure moisturising effect lasting at ▶



Figure 1: After only one month of twice daily application of a cream containing 3% "Optim hyal", the skin's microrelief is smoothened and the skin appears healthy and well hydrated.

least two hours, while the empty capsules can absorb excess sebum from the skin surface to mattify the complexion.

In vivo experiments performed with twelve female volunteers with a mean age of 45.9 years showed that the application of a powder containing 1% of the active ingredient enhances skin moisturisation within one hour after application. This effect is better and more prominent two hours after application. Skin moisturisation was significantly improved in comparison with the placebo and skin roughness was visibly reduced.

“Vegesome moist 24” works well as an ingredient to be formulated in powder make-up, such as bronzing powders, face powders or eye shadow, providing an exceptional velvety touch together with immediate moisturising and mattifying properties.

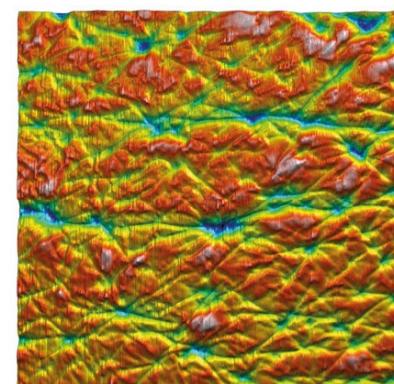
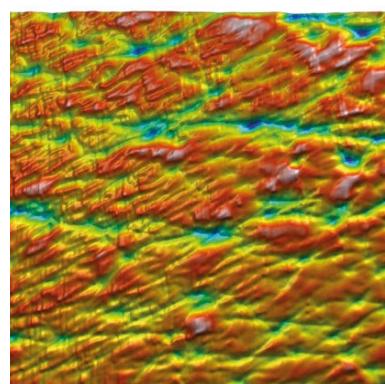
Concealing and reducing wrinkles

Focusing on the increasing consumer demand for anti-ageing products to allow dignified and graceful ageing, a novel powder has been designed for colour cosmetics applications. This eco-designed ingredient is a pure lyophilised plant cell culture extract of *Leontopodium alpinum* (Edelweiss), which can be easily incorporated into make-up powders to provide anti-ageing benefits. It exerts a lifting effect to the skin, especially around eyes and lips, can reduce fine lines and wrinkles and significantly enhances the skin isotropy.

A clinical study confirmed that the application of a loose powder containing 0.03 % of “Majestem drypure” for two months leads to a visible reduction of fine lines and wrinkles and smoothing of the skin texture (figure 2). The skin appears lifted



After 2 months



After 2 months

Figure 2: Before using pure lyophilised plant cell culture of *Leontopodium alpinum* and after two months of application of a loose powder containing 0.03%.

around eyes and lips. In addition, due to its antioxidant properties, it provides protection against pollution and sun damage.

Luminosity of the skin

Regarding the consumers` desire for a more homogenous and more luminous complexion, a plant cell culture extract of *Buddleja Davidii*, known

as the butterfly-bush, responds to the specific beauty concerns of olive complexions. These are associated with skin phototypes III to V and need specific care, since they tend to be hypersensitive and are prone to inflammatory hyperpigmentation. Due to its anti-oxidative, anti-inflammatory and pigmentation control properties, the active ingredient “Amberstem” reduces inflammatory hyperpigmentation, dullness and redness. It also **reinforces the skin barrier and improves hydration**.

A clinical study confirmed that it fades dark areas and reduces skin redness. Most of the volunteers perceived a decrease in the intensity of

“SKIN HYDRATION IS AN ESSENTIAL ELEMENT TO ACHIEVE FLAWLESS, HEALTHY-LOOKING SKIN.”

Dr Sarah Christina Pütsch, technical marketing lead, Croda International



Figure 3: Before and after twice daily application of a lip balm containing 1% "Volulip" for one month.

dark areas and found their skin to be more luminous and well moisturised. The active ingredient can be incorporated into any type of facial care, make-up, sun and after-sun products.

Sebum regulation is also an essential aspect for end consumers to mattify their complexion. Women, as well as men, strive for an even complexion without uncomfortable skin shine caused by excess sebum flow.

An active ingredient, "Evermat", that associates Enantia chlorantha extract and oleanolic acid decreases the sebum production and refines the skin grain. By inhibiting the 5a-reductase activity it provides a reduction in sebum flow and consequently a less oily skin. Furthermore, it reduces skin shine as well as the pore size, thus refining the skin texture. The reduction in sebum flow and skin shine is notable: the skin is mattified and the pore size is visibly reduced. The active ingredient is suitable for any type of facial care product to reduce skin shine, dilated pores or oily skin and can be incorporated into foundations, camouflage creams or make-up fixing and mattifying sprays.

Lucky Lips

Another popular and dynamic make-up segment is lip make-up. For that, every conceivable colour can be combined with an active ingredient that hydrates the lips and/or provides a volumizing effect. "Volulip", a combination of Portulaca pilosa extract and a dioxygenated peptide can improve the lip texture and exerts a plumping effect. In vivo studies revealed a visible impact on the lip shape and curvature. After one month of application, an increase of the lip volume, hydration and softness could be seen (figure 3).

There is a broad range of high-performance active ingredients with numerous proven skin care benefits that can easily be incorporated into make-up products. They respond to the current demands of end consumers for make-up products that not only cover the skin but bring multi-purpose, caring properties, which deeply and visibly improve the skin's condition and appearance for a flawless, natural and glowing complexion. □



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INTERVIEW



WHEN AGING BECOMES POSITIVE

Trends | The generation over 50 no longer occupies a marginal position in the cosmetics industry. Good and healthy aging are the key words today. Maud Merlini talks about what this target groups wants and what its skin needs.



■ **Maud Merlini**
inspirational marketing,
manager, Cologne, Germany,
www.seppic.com

COSSMA: The view of the topic of “anti-ageing” has changed. What exactly is different now?

Maud Merlini: In the past ten years, the perspective of the cosmetics industry on the topic of “anti-ageing” has changed quite a bit. Trends agencies advise to accompany ageing,

brands are now talking about “slow ageing” and “ageing well”, in the press. Young women are also making a little more room for their elders (fifty years and above).

This is the pro-age trend, which we interpret as a move away from the beauty ideal that was defined by eternal youth.



If the ideal of beauty for women over 50 is no longer perfect, youthful skin, what do they expect from their care products now?

We notice that the perception of beauty has shifted over the years and tends toward a more emancipated vision. For instance, in 2017, a study revealed that among more than 10,000 women questioned, 70% think that beauty is something that you define yourself¹.

One of the first expectations is a change in the communication of brands on anti-ageing products. Ageing is inevitable; women are fighting less and less against time flying. They claim the right to be beautiful and feel well, whatever their age. This

acceptance can be seen, for example, in the rehabilitation of certain signs of ageing such as "happy wrinkles" or silver hair. Consumers also expect fewer overpromises and more realistic benefits from brands.

When we look closely at women aged 50 years and over, they form a significant and increasing demographic group for the beauty market, with a real purchasing power. What do they want? They expect products designed specifically to answer to their changing skin conditions, for example related to menopause.

Also, when we take a look at younger consumers we observe that they change their attitude towards ageing and start using anti-ageing products earlier. Indeed, a study conducted in the UK reports that among 5,000 women, 62.4% think now that "anti-age" consists of "preventing" the effects of skin ageing², rather than trying to correct them.

Which active ingredients are currently setting trends and what are they doing?

Facing these new consumers expectations, brands must both adapt their marketing speech and change their strategy of active choice to enter in a "pro age" strategy.

Some brands work on a less negative approach towards ageing by promoting fewer corrective benefits, such as improving complexion glow and concealing skin tone imperfections.

To value women over 50 years old – formerly side-lined in the cosmetics sector – brands can design products specifically for mature skin. With age, skin loses its integrity. The metabolism slows down and it doesn't allow the skin barrier to be maintained anymore. When this occurs, the skin loses both moisture and firmness; it becomes dehydrated and wrinkles appear. Centella asiatica is a trendy ingredient to care for mature skin as it can regenerate the natural skin barrier.

For those who look to protect the youth capital, antioxidant ingredients are commonly used. However many brands are also looking for new approaches in preventive

aging. Our extract from the red seaweed *Asparagopsis armata* protects the skin from endogenous stress using a unique approach; it controls contagious ageing (in vitro). Ageing leads to an excess of senescent cells characterised by functional and morphological modifications. These cells also produce a "Senescence Messaging Secretome" (SMS), affecting neighbouring young cells and accelerating the signs of ageing. The extract of *Asparagopsis armata* regulates the impact of SMS in order to reduce the contagious aging effect on young cells. It protects young cells from senescence induced by SMS.

"Healthy ageing" instead of "anti-ageing" - what does this mean for customers' care routine and way of life?

In terms of way of life, "healthy ageing" having a more holistic approach to beauty. For example, consumers are aware of a connection between diet and appearance and pairing up traditional cosmetics with edible products can be a great opportunity. To support brands in this direction, we can offer a patented complex of plant-based ceramides that maintains a healthy skin with moisturizing and antioxidant action, for both topical and edible applications. Of course, the basic trio routine – cleanser, serum, cream – is here to stay, but beauty supplements can enrich customer's skin care routine. □

References

(1) Philips Global Beauty survey – 2017, with more than 10,000 women.

(2) 'Skin Thinking' study conducted on 4,963 British women aged from 18 to over 60 years (2018)



The extract of red seaweed *Asparagopsis armata* helps to protect younger cells from senescence.



BIO INSPIRED

Research | Probiotics are well known for having a positive influence on health. Recently, scientists set their focus on postbiotics, their bioactive metabolites. Following the natural model with jojoba, scientists have achieved special results for dry skin.



► **Mélanie Coirier**
communication officer



Pauline Rouaud-Tinguely
Innovation Management
project leader, both Silab, Saint
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www.silab.fr

Over the past ten years, scientists have made enormous progress in the understanding of the role of the microbial flora on health. This progress has led to the emergence of new therapeutic strategies based on the use of probiotics (defined as good bacteria), and more recently of postbiotics, a set of bioactive metabolites produced by probiotics. First related to the food industry and gut health, these microorganisms are now an area of research in the cosmetic industry. As one of the first companies, Silab became interested in the idea of transposing their beneficial effects to the skin. The company thus applied its expertise in mastering

biotechnologies to bioguide the production of a natural postbiotic capable of addressing dry skin issues using a biomimetic approach.

Definition of pro- pre- and postbiotics

From the scientific discoveries on the human microbiota appeared the notions of probiotics, prebiotics and postbiotics. The knowledge of the precise terminology is very important for those who decide to work on these new concepts. Here are some key definitions, according to the literature and the World Health Organisation (WHO)^{1, 2}:

- **Probiotics** are living microorganisms such as Lactobacilli or Bifidobacteria that, when administrated in sufficient quantities, have positive effects on the host's health. They are more commonly known as "good bacteria". It is very important to notice that a new term called paraprobiotic recently appeared and refers to dead or lysed microorganisms³;
- **Prebiotics**, literally "before the probiotic", are non-digestible food in-

gredients that selectively stimulate the growth and/or activity of "good bacteria" that may improve the health of the host;

- **Postbiotics**, literally "after the probiotic", are non-viable bacterial products or bioactive metabolites generated by probiotic microorganisms which bring benefits to the host.

First described and used for the treatment of intestinal disorders and general health, the concepts of probiotics and resulting postbiotics are now occurring in cosmetic industry⁴.

From bio-inspiration to bioconversion

The most well-known probiotic belongs to the genus *Lactobacillus*. For the development of its new care product for dry skin, Silab's research teams got specifically interested in *Lactobacillus (L.) arizonensis* a plant probiotic highly adaptable to desert climates. Indeed, it colonises jojoba, a shrub growing in extreme drought conditions, such as those of the Arizona desert. In order to ensure its survival, this good bacterial species

(= probiotic) bio converts molecules of its host into bioactive metabolites, more commonly called postbiotics. **This ability to modify its metabolism to its environment provides it with a remarkable adaptation capacity** and is the reason for its nickname of “natural metabolic engineer”.

In this context, Silab's team decided to use its historical expertise in biotechnologies and microbiota in order to reproduce in-house the specific natural environment of *L. arizonensis*. As expected, adding jojoba to the culture medium has mimicked the existing partnership between this bacterium and its substrate, thus allowing to bioguide the production of postbiotics rich in active molecules of cyclic polyols-type.

Interestingly, these molecules were specifically identified by analytical laboratory as highly interesting due to their biomimetic action and particularly their ability to improve the quality of dry skin. Indeed, these cyclic polyols (identified through a metabolomics study by UPLC-MS/MS) are osmoregulating molecules known to play a fundamental role in adjusting osmotic pressure in plants. **In drought conditions, they participate in maintaining the water status of the plant**, in turn contributing to preserving its active metabolism. Such metabolites present a suitable molecular profile to treat skin dryness.

Produced at industrial scale, the supernatant was used as natural raw material to concentrate active molecules by a patented process.

A natural solution

Dry skin is a common disorder that is marked by several symptoms including discomfort, excessive desquamation and the appearance of unsightly irregularities. These manifestations are the result of an alteration of the skin barrier function, caused by a number of factors (deterioration of the epidermal differentiation and cohesion, defect in the formation of the lipid cement and transepidermal water loss).

To determine the efficacy of the obtained active ingredient on dry skin, the company developed an in-house



before treatment



after treatment +16.2%

Effect on hydration of the skin of Caucasian volunteers (hands).

modelling mimicking dry skin, which enabled it to demonstrate the alteration of the skin barrier function and to prove that its active ingredient reactivates its integrity. More precisely, this was done by developing a novel *in vitro* 3D model of reconstructed epidermis subjected to a water stress, induced by incubation in an atmosphere of 40% humidity (vs. 82%) for three consecutive days.

Through this modelling study, **the postbiotic was proven to boost the mechanisms inherent in establishing an effective barrier function**, thereby limiting the effects of epidermal dehydration, with the improvement of the differentiation process and epidermal cohesion and the activation of the lipid cement formation. These actions

at the cell level all support cosmetics benefits.

Indeed, the results of *in vivo* tests demonstrated that after 28 days of twice-daily application to the face of Caucasian volunteers with dry skin, active molecules at 1% maintain the microbiota's equilibrium and revitalises renewal of the cutaneous barrier. Hydration is improved (+ 16.2%) and complexion radiance is revived, as shown by increased reflection by the skin (+ 7.4%; $P < 0.01$). This dual hydrating/complexion booster effect was also seen on the face of Asian volunteers, to a significant degree.

Conclusion

With science as its driver for innovation, Silab combined its expertise in mastering natural products, biotechnologies and microbiota to develop a biosinspired, natural active ingredient. This patented biotech active (INCI name: Maltodextrin and Lactobacillus Ferment) is recommended in all care products for dry skin, available as a powder without preservatives (recommended amount: 0.1 to 1%) and compliant with international cosmetic regulations (Europe, United States, Japan, China, etc.).

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INTERNATIONAL LAUNCHES

Product development | This month, Mintel presents active ingredients. Many Manufacturers currently focus on certain ingredients that have a strong potency and different effects on the skin.

Nowadays, most customers expect products that promise quick and clearly visible results. Therefore, new and well-known ingredients are researched and used accordingly.

Help for irritated skin

The "Doctor Babor Pro" range includes BA Boswellia Concentrate, which is claimed to provide a calmer and more even complexion, enhancing the barrier function of irritated skin, thanks to Boswellia extract with anti-inflammatory effects. The vegan and pH optimal product is free from fragrance and synthetic colourants.

Vitamin booster

La Roche-Posay "Pure Vitamin C10 Serum" is described as an anti-wrinkle, antioxidant renovating serum that makes skin feel instantly softer, more hydrated and glowing, while reducing wrinkles and fine lines. The serum is said to make skin texture and tone appearing more uniform,

DR BABOR PRO

Boswellia extract with anti-inflammatory effects.



LA ROCHE-POSAY

The serum is suitable for sensitive skin.



CERAVE

Dermatologically developed: "Resurfacing Retinol Serum".



BRTC

The peeling pad features two different sites.



even and refined, while the skin regaining its full radiance. It features a light, fast-absorbing texture at a physiological pH that leaves a velvety, non-greasy finish. Suitable for sensitive skin, it is formulated with the key ingredients pure vitamin C and the peptide neurosensine.

The power of ceramides

CeraVe "Resurfacing Retinol Serum" contains three essential ceramides (1, 3 and 6-11), encapsulated retinol, licorice root extract and niacinamide said to reduce the appearance of post-acne marks and pores, restore the protective skin barrier and improve skin smoothness. The patented MVE technology provides controlled release of ingredients. The serum is also claimed to brighten, resurface the skin for a refined appearance and a healthy look without causing dryness. The non-comedogenic and dermatologically developed product is free from parabens and fragrance.

Intense cleaning

As a part of the BRTC "Multi-Vital 10 System" range, the "V10 Peeling Pad" is described as a purifying moisturiser that helps remove dead skin, while supplying essence to instantly restore radiance. Formulated with centella asiatica extract, PHA and bergamot fruit oil, the pads have completed skin irritation tests. The pad features two sides for different functions: bumpy embossing, for sebum control, exfoliation, makeup remover and soft, smooth cotton, for moisturising, smoothing, and texture improvement. □



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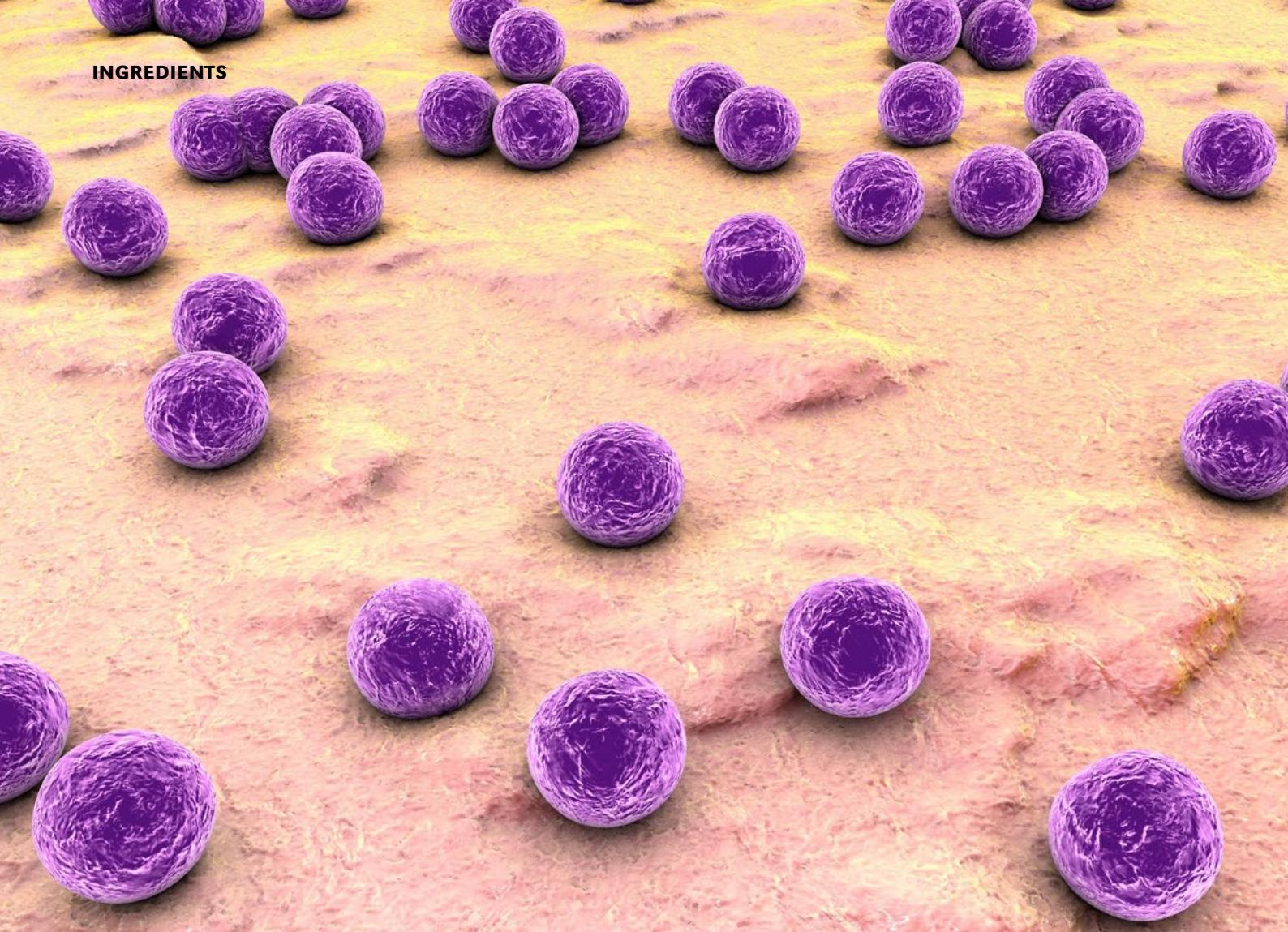




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WHAT SKIN MICROBIOME CAN

Research | More and more cosmetics ingredients want to improve the skin by effecting the skin microbiome. But what is the microbiome and how is it composed? Dr Bernd Becker gives an overview.



► **Dr Bernd Becker**
MolCareConsulting,
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www.molcare-consulting.com

Dodorants were the first cosmetic products developed to influence our skin microbiota, reducing axillary malodours liberated by decomposition of apocrine sweat. In addition, new therapies to treat atopic dermatitis or rosacea, or even dandruff, have

been developed by targeting skin's microbiome.

The **microflora, or microbiota as we call it more precisely, is in fact the assemblage of microorganisms present in a defined environment**.

The human microbiota is composed of a large diversity of bacteria, yeasts, fungi and other viruses, and their total number is estimated to be 10,000 different species⁸.

Microbes on our skin also communicate with our body⁹, and in particular play an important role in our immune system¹⁰.

Without contest, the skin microbiome is a full player in our beauty and well-being. But how do we assess this? How do we evaluate the impact of a cosmetic active ingredient or a finished product for consumers on the stratum microbium?

In our company we master both skills equally, with a particular know-how on cutaneous microbiota sample collection, as well as proprietary databases of genes that are exploited with home-made bioinformatics pipelines. Indeed, after many years spent in developing procedures and databases

to explore soil and gut microbiomes, our focus is now on skin metagenomics techniques^{13, 14}.

Impact of colon's microbiota on the skin

The passage between colon and skin is well known. The skin does not stop at the lips; the skin of the face continues inward throughout the complete digestive system. Skin and the colon mucosa are in direct and tight connection.

Of interest is the flora of the colon. The microbiota of the colon not only decides about a thick or thin body but very often about the health status, as well.

The colon's "long arm" reaches far inside, influencing nearly every organ of the body. The colon behaves like a helpful and outgoing friend in a lot of ways.

The **microbiota produces messenger molecules and hormones** and also coach the immune cells. The healthy

colon is obligatory for many healthy and pleasant issues. A healthy colon is necessary for a good body mass index, happy feelings and also good skin, leading to a glowing complexion, fewer pustules, full hair, less allergic reactions and the alleviation of many skin diseases.

With the lips the skin is not only putting over the skin of the face and backing the mouth but is covering as mucosa the complete digestive tract. The skin as well as the colon mucosa define the borderlines between our environment and our bodies, the inside protecting us from harmful impacts outside.

The rise of acne

Acne is a disease of the sebaceous glands with purulent pustules and blackheads. This skin disease is provoked and continued by many factors.

During adolescence there is an increase of androgens in the blood.

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These increased androgens lead to an increase in sebum expressing in greasy skin and hair. Simultaneously, the follicles are blocked by terminally differentiated dead keratinocytes, the horn cells, which causes a black head.

Microbiota from the skin flora, particularly the so-called Propionibacterium acnes proliferate very rapidly and provoke an inflammatory reaction of the follicle¹⁵.

The compounds of the skin flora are permanently changed and regularly complemented, for example by shaking hands.

Microbiota are regularly exchanged between humans. Just the incredibly large number and diversity of micro- ▶

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"THE SKIN IS A DYNAMIC ECOSYSTEM INHABITED BY BACTERIA, ARCHAEO, FUNGI AND VIRUSES."

Dr Bernd Becker, MolCare Consulting

organisms on our skin protect against harmful pathogens.

Colon and inflammation

Inflammation is a very important function of the immune system. It protects against pathogens, trying to enter the body.

It is an interesting observation, that, before diseases and strong inflammations occur, there is a decrease of bacterial diversity often weeks, months or even years before the disease occurs.

Harmful bacteria can spread more easily and suppress protecting microbiota. Correlation has been found between neurodermitis, allergies and diabetes. It has been shown that, during normal ageing, the colon's flora deteriorates to an impotent and tedious monoculture.

What polyphenols can achieve for the skin

Polyphenols are secondary compounds from plants responsible for the colour, taste and smell of food

products. Many studies have demonstrated, that polyphenols effectively absorb harmful substances, for example free radicals, and support and increase the intrinsic protection mechanisms of the skin against sunlight (UV-radiation), delaying the formation of wrinkles and senile lentigo.

Polyphenols help with their dichotomy between their biotransformation to their metabolites and modulation of colon's microbiota to improve health¹⁶.

Most of the polyphenols pass together with the food into the small intestine without being absorbed. They reach the colon and influence the colon's microbiome¹⁷, leading to reciprocal connection and interaction between polyphenols and the colon microbiome.

The skin is a site of constant dialog between the immune system and commensal bacteria. The skin is the interaction area between commensal skin microbes fundamental to skin physiology and immunity.

Regulatory T (Treg) cells play a critical role in establishing and maintaining immune homeostasis in peripheral tissues. In the colon, the commensals themselves facilitate generation of peripherally induced Treg cells that are critical for proper immune homeostasis.

A defined period of neonatal life is characterised by an abrupt influx of highly activated regulatory T (Treg) cells into neonatal skin.

During this developmental window, the host-commensal relationship in the skin relies on a unique treg cell population that mediates tolerance to bacterial antigens¹⁸.

The Microbiome and Anti-ageing

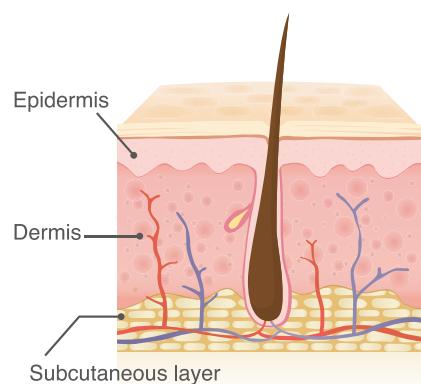
A study published in 2017 by Han describes the influence of the microbial composition on ageing. They found that certain bacterial genes and compounds can slow the progression of tumors and the accumulation of Amyloid-beta, a compound associated with Alzheimer's disease. The study's researchers posit that, eventually, slowing down the ageing process entirely may be possible with supplements derived from gut bacteria²¹.

The skin is a dynamic ecosystem inhabited by a lot of different skin microbes (bacteria, archaea, fungi and viruses) which are fundamental to skin physiology and immunity. The skin is replete in diverse and unusual lipids not found elsewhere in the body^{22, 23}.

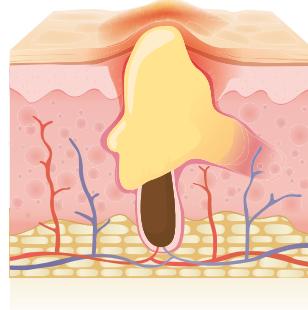
Some of these lipids, such as sapienic acid, have antimicrobial activities, while others, such as triglycerides, are then metabolised by microbes into free fatty acids and di- and monoglycerides that can be bioactive against other microbes or stimulatory to host cells^{24, 25}.

Sanford and colleagues showed that short-chain fatty acids (SCFAs) produced by microbes colonising the skin's surface lead to the inhibition of the histone deacetylase (HDAC) activity. It is known from microbes that populate the intestinal tract produce high levels of SCFAs that inhibit HDAC activity²⁶⁻²⁸.

Normal Skin



Acne Appeared



One factor that can trigger acne is an imbalance in the skin microbiome.

Microbiome in healthy skin

From a bacteriological point of view, our skin can be considered a culture medium. Its composition is mainly the consequence of our genetics, diet, lifestyle and where we live. As a result, each human skin is unique and each microbiota present in the different areas of our skin is unique. There are **four main types of environments on the human skin moist, sebaceous, dry and others skin**:³⁶

Moist areas include the axilla, inner elbow or inguinal fold (groin). Sebaceous areas include the forehead, the alar crease (side of the nostril), the retro auricular crease (behind the ear) and the back¹¹, whereas the drier sites include the upper buttock area³⁷.

Further microenvironments include the sweat glands, hair follicles and the dermal layers. Multiple independent detection techniques have shown that bacteria are not only present on the skin surface but are also found in deeper layers of the epidermis and even in the dermis and dermal adipose tissue³⁸.

These layers have specific microbiome profiles and contain many specialized cell types such as dendritic cells, melanocytes and Langerhans cells that each express a unique repertoire of functional pattern recognition receptors (PRRs) which respond actively when exposed to components of microorganisms³⁸⁻⁴¹.

Why is the skin microbiome so important?

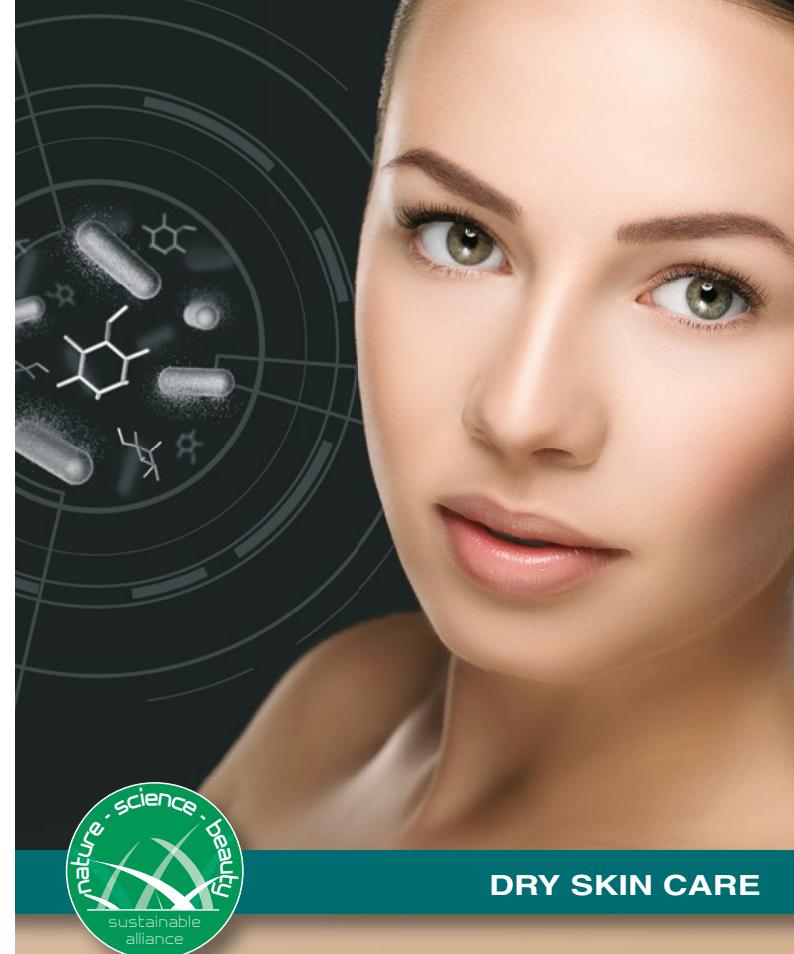
The skin barrier and the microbiota act like a shield that protects the body against external aggressions. The composition of skin microorganism communities determines the barrier function of the skin. Altering the equilibrium in the microbiome populations might disturb the skin barrier function and activate chronic skin diseases like atopic dermatitis⁴²⁻⁴⁶, psoriasis^{37, 38} or acne^{37, 38, 47-49}. The skin microbiota modulates the expression of various innate factors, including interleukin 1α (IL-1 α)⁵⁰, components of complement⁵¹, and antimicrobial peptides (AMPs), which are produced by keratinocytes and sebocytes.

Data show that the non-classical MHC class I molecules, an evolutionarily ancient arm of the immune system, may play an important role in promoting homeostatic immunity to the microbiota and that the skin resident bacteria can have myriad effects on the host.

In addition to that, to promoting immune barrier responses, commensal-immune interactions can also affect epithelial biology.

The effects of commensal-immune interactions on many other cutaneous processes, including adnexal development, tumorigenesis, ageing, and sensory nerve function, remain to be determined.

The involvement of the peripheral nervous system may be more general and integral to skin immunity than has been previously recognized. More recently, a direct mechanical link between neurons and immune cells has been discovered. Mucosal neurons were found to produce a neuropeptide, neuromedin U (NMU), that binds an NMU receptor on group 2 innate lymphoid cells (ILC2s) and triggers a protective immune response⁵². □



DRY SKIN CARE

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in vitro efficacy

- reinforces the integrity of the skin barrier

in vivo benefits

- preserves the equilibrium of skin microbiota
- boosts epidermal renewal
- improves quality of dry skin: hydration and luminosity



Before treatment

After treatment

+16.2%

Bioinspiring biotech design

Combining a drought-adapted **probiotic** (*Lactobacillus arizonensis*) with smart bioguided process to produce a bioactive postbiotic, effective for dry skin



BETTER SLEEP – BETTER SKIN



Ingredients | Produced by brain and by skin cells, melatonin acts as a powerful antioxidant and activates cellular protection. However, daily digital exposure disrupts skin melatonin production, leading to premature skin ageing and disturbing sleep-related functions.



» **Mathias Fleury,**
global category
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Sleeping is one of the best-known beauty secrets. Regular peaceful nights give our skin a clear and radiant complexion. The opposite leads to dull and tired skin. If everyone seeks skin as perfect as possible, they should know that without restful sleep most of the applied

products will have limited effectiveness. A recent study reveals that 80% of people globally are dissatisfied with their sleep quality. Other studies indicate that 68% of US consumers struggle to fall asleep or stay asleep while 50% of Brits fail to get their recommended seven hours of sleep per night. The reason? The daily melatonin rhythm cycle has been disturbed.

Sleep disorders

Melatonin is a well-known sleep-related hormone naturally secreted by our organism (brain and skin), on a daily rhythm cycle. If it is well-known

for its crucial role in our capacity to fall asleep and in our sleep quality, it has other lesser-known properties such as being a powerful anti-ageing agent, thanks to its strong antioxidant properties, as described by the literature. When **exposed to digital stress** (electronic devices, artificial and blue light...) melatonin production rhythm is disturbed, ending up in skin ageing (mostly due to a loss of antioxidant defences and damage to mitochondria) and a perturbation of the sleep-related functions (difficulty to fall asleep, waking-up several times at night, morning fatigue). This results in a vicious circle of prema-



ture skin ageing, with skin more exposed to external aggressions and unable to restore itself during resting phases of the human body.

In a world where consumers are also convinced of the strong link between sleep quality and skin health, it becomes clear that **melatonin protection is a key solution** for both well-ageing and well-being.

Against digital stress

Researchers have investigated specific tetraterpenoids, generally known for their antioxidant and anti-inflammatory benefits. The tetraterpenoids crocin and crocetin have been identified as having additional benefits against blue light and UV radiations, as well as for their ability to improve sleep quality.

Gardenia jasminoides J. Ellis fruit extract, rich in tetraterpenoids with an important absorption ability when it

comes to high energy visible light, could act as a natural filter of blue light. This will result in anti-ageing and well-being properties, by regulating and improving the sleep cycle with its protective action on skin melatonin. Relying on the NaDES technology (NAatural Deep Eutectic Solvent), experts in green fractionation crafted a stabilised gardenia fruit extract enriched in crocin¹.

With further collaboration from experts in skin biology, physiology and skin microbiomics, they demonstrated that crocin not only protects the natural skin melatonin cycle and acts as a powerful antioxidant but can also be converted into crocetin by the skin microflora, triggering the same biological receptors as melatonin (MT1R). Gardenia fruit extract offers an exclusive and unique dual mode of action, behaving as a blue light filter and as a vegetal melatonin-like molecule, activating biological mechanisms of skin repair and defences connected to the circadian rhythm, ultimately linked to well-being.

Better nights

Gardenia fruit extract preserves the cutaneous production of melatonin when skin is exposed to a source of digital stress thanks to its blue light absorbing properties. Melatonin can therefore achieve its natural role of fighting against the deleterious effects of digital pollution on skin. Furthermore, thanks to its activation by the skin microbiome into a vegetal melatonin-like molecule, the ingredient can take an active part in the skin's defences and well-being mechanisms.

Clinical tests have highlighted that gardenia fruit extract reverses visible signs of ageing (-21% fewer wrinkles versus placebo) while contributing to a general improvement of volunteers' sleep quality (ease of falling asleep, the number of nighttime awakenings down by -87%).

Gardenia fruit extract is a natural ingredient to fight against the damages of digital stress, both for preventing premature ageing and improving overall well-being.

Study: Improvement of sleep quality

The well-being benefits were assessed during a clinical test by analysing filled in daily logbooks of the volunteers for 56 days. The logbook was filled by the volunteers every morning in order to collect data on different parameters (source of exposure to digital stress, screen exposure duration, ease of falling asleep, number of nocturnal awakenings).

It appears that the active ingredient at 2% has a significant impact on the sleep quality versus placebo, according to the perception of volunteers. It makes it easier to fall asleep (it was easy to fall asleep 90.6% of the nights versus 84.8% of the nights only with the placebo), and drastically decreasing the number of awakenings every night (20.0 of 28 nights without awakenings versus 14.3 for the placebo).

The median number of times volunteers woke up each night for 28 nights was drastically reduced as well, with only 3.0 awakenings on average versus 23 for the placebo. Interestingly, the efficacy has been proven to be even better on the younger part of the panel (18 to 34 years old), making the ingredient relevant for any generation, from millennials to boomers! □

References

1. Synchronite
2. OTC Sleep Aids, US, Nov 2019
3. Mintel's Sleep Aids - UK, November 2017



Active ingredients made of gardenia jasminoides can act as a filter of blue light.



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Formulations | Nature is trend. Whether in washing products, skin care or hair care, customers ask for natural products in every field. Details of all the products presented here are available for download at www.cossma.com.

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Cake Pop Highlighter
Nordmann Lab

Natural Baby Care Lotion
Provital Group

Good in bed
Roelmi

Greenita
Safic Alcan

Anti-ageing and anti-fatigue night pack
Sederma

SOS Strand Hair
Seppic

Lagom Lotion Sweden
Sisterna

Shower Cream
Zschimmer & Schwarzl

In the June issue we will focus on formulations for sun care for all skins and all over the body. In our August issue, formulations for hair care products will take centre stage. All of the information published here has been carefully assembled. Neither the publishers nor the developers of these formulations can accept responsibility for their safety or accuracy.

NEWS

News
OF THE
Month



The alpine rose grows in the high Alpine regions of Switzerland.

CLEARING AGE-PROMOTING CELLS

MIBELLE BIOCHEMISTRY | Eliminating senescent cells has emerged as a promising anti-aging therapy in the medical field and with "Alpine Rose Active" this novel "senolytics" concept is now for the first time adapted for cosmetics. It is claimed that it was shown to specifically clean-up misdirected, age-promoting senescent cells and in clinical studies to significantly reduce skin redness, increase skin elasticity and protect from UVA induced photo-aging. It is a purified extract leaves of the organic alpine rose. This robust plant grows in the high Alpine regions of Switzerland and is carefully harvested by sustainable wildcrafting.

www.mibellebiochemistry.com

Positive effects with fish collagen



An alternative to meat collagen: fish-derived bioactive collagen.

GELITA | A new study confirms supplementation with fish-derived bioactive collagen peptides can be as effective as meat collagen, by showing significant skin improvements. The randomized controlled trial showed that supplementation with fish-derived bioactive collagen peptides "Verisol", at a daily dose of 5 g, significantly improved skin elasticity and reduced wrinkles volume.

www.gelita.com

Pink pigments

COLORS & EFFECTS |

With "Cloisonné Vibrant Raspberry" the company launches a bold, magenta metallic-like effect pigment based on sustainably sourced natural



The new vegan, magenta pigment is launched.

mica. As a carmine-free pigment that's globally approved for use in all products, it is claimed to fill a gap in the market by offering a solution for a natural, vegan product in this colour space along with transparency and environmentally conscious processes in its production.

www.colors-effects.bASF.com

MORE SUNPROTECTION WITH LESS CHEMICALS

AGC CHEMICALS AMERICAS | To help formulators achieve the required SPF in cosmetics and skincare products using less chemicals and active pharmaceutical ingredients, the company now offers "Solesphere H-52" and "H-53" silica gels. These silica gels have large pores and an increased surface area to effectively scatter light, which means less UV-absorbing chemicals are needed in the formulations. These are also less likely to lose their SPF effectiveness over time because they are less dependent on active ingredients. The microspherical silica products are claimed to be safe and effective and do not harm water life.

www.agcchem.com



Silica gels in sunscreens help to reduce chemicals.

CBD: PURE OR BLENDED

BOTANICAL ORIGINS | The company offers broad spectrum CBD and CBD Isolate. Both products are THC free and are grown and produced in the USA by small, reputable farmers. Each lot is meticulously tested by government certified laboratories. Botanical Origins also offers custom blending services. As a part of their service offering, broad spectrum CBD or CBD Isolate can be blended into the client's choice of premium quality vegetable oil, up to a maximum of 25% concentration.

www.botanicalorigins.com



Hemp is the origin of CBD.

SPOTLIGHT

PUMPS & DISPENSERS

Protects against pollution p 38

Skin care for all types p 42







PROTECTS AGAINST IMPURITY

Packaging | As soon as skin care products are opened, their lifespan is quickly reduced. If no preservatives are added, germs and impurities ensure that the shelf life is significantly reduced. A new airless system wants to remedy this.



► Bernd Genath,

Journalist,
Düsseldorf,
Germany,
www.fischerplanning.com

With their warmth and moisture, bathrooms provide ideal conditions for various bacteria and other harmful microbiologies to multiply. This is one of the reasons why cosmetics and body care products cannot do without preservatives. A new concept for soap and lotion dispensers prevents the polluted air from flowing into the opened containers and germs from colonising the contents. The products can thus be formulated with fewer preservatives.

Open door

Why are there preservatives or why are there germs in cosmetics at all?

Germs can get into the containers during production and filling, although clean room conditions with strict hygiene regulations prevail in production facilities. The main source of germs is the bathroom as a home beauty salon and storage place for products. Because of the humidity and heat, germs prefer to settle here. Several hundred colonies of different species breed on tiles and in joints. The door is open for bacteria and moulds after the first use of the formerly airtight bottles, tubes and dispensers. The microbes would react without chemical countermeasure with the contents, not only spoil it, but, in some circumstances, also spoiling illnesses with contact with the skin. Hence the addition of preservatives.

The cosmetic industry also mixes parabens - an ester acid - and other stabilisers into these ingredients so that the sun milk does not ferment

during the summer at least. It is necessary to buy a new spray bottle or tube for next year. How long creams, mascara and rouge remain suitable to use can be seen from the imprint on the packaging. However, only those cosmetics with a shelf life of less than 30 months need to bear an indicative date.

Prevention instead of aftercare

Today, however, science is sceptical about the hygiene offered by preservatives. It does not rule out the possibility that some of them may simply shift the health risk from the active ingredient to the admixture. Parabens, for example, are suspected of triggering allergies. Broken, thin skin, for example, is considered a risk factor because the preservative diffuses into the bloodstream more easily. In general, however, the Scientific Committee on Consumer Safety of the European Commission certifies that ▶

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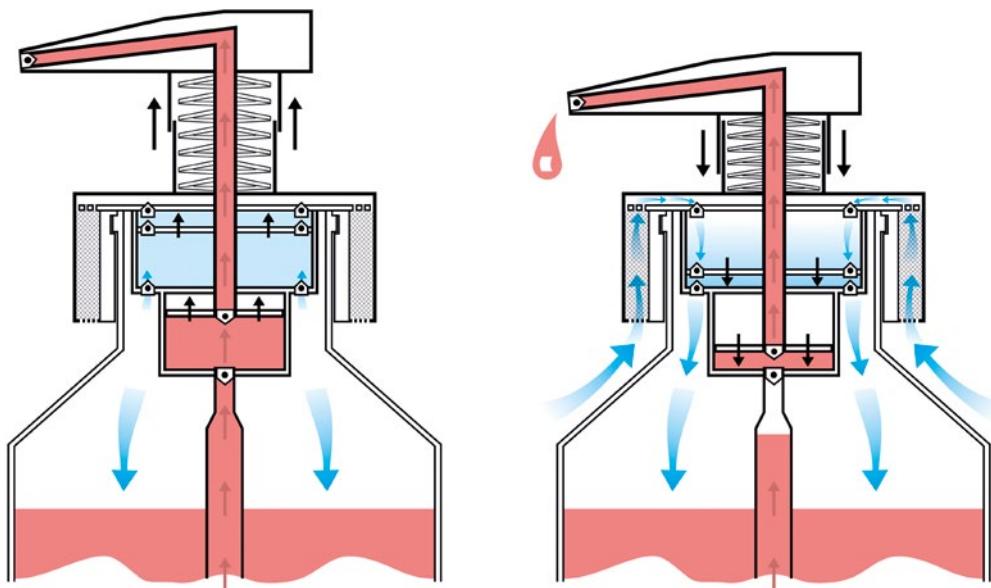
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Filter sponges in the dispenser catch the germs.

fungicides have a low toxicity and no carcinogenic effect. The committee has evaluated various studies over several years and came to this conclusion. The EU directives also permit a parabene dose of four to eight parts per thousand in a cosmetic or body care product, depending on the substance.

Even if most studies refute the intolerance of PHB esters and other preservatives in ointments and shampoos, the majority do not rule out a possible influence on health. The suspicion is derived from diseases in which the measured high concentration of preservatives might have played a role. Pink Ribbon, for example, the campaign against breast cancer, points out that parabens have been repeatedly found in breast cancer tumor tissues.

German-Israeli development

This means that even without clear indications of aggressiveness, the pharmaceutical industry should err on the side of caution and limit itself to a minimum of possibly toxic preservatives in its products. Cleanroom technology, which ensures low-particle air in production operations, is

a step in this direction, although, it does not protect against germs in the consumer's bathroom. As a result, companies have no choice but to add a potpourri of antidotes to their emulsions.

However, if you had packaging that only allowed ambient air into the vial or dispenser via a mini filter, it would be possible to reduce the addition of further chemicals. This is exactly what a German-Israeli company said to itself.

Similar to a bicycle pump

With cosmetics the customer expects a sufficiently long period of use. The idea therefore considered air sterilisation for open dispensers and flacons. Without making the container too much more expensive. The result is a miniaturised air pump-like principle based on the well-known lotion dispenser, but with a few more plastic parts inside.

The development has been registered with the German Patent and Trademark Office in Munich under the publication number WO 2018/019592A1 since mid-2018. The description reads: "The invention concerns a dosing dispenser system

for a pumpable dispenser product, in particular a cosmetic fluid dispenser product such as washing and cream lotion, perfume liquid or similar. The dispenser system is comprised of a rigid or flexible product container and a dispenser device, in which at least one filter unit is arranged for sterile air filtration."

How do conventional dispensers work? By means of a tiny piston pump. The piston pump sucks the fluid out of the container during the upward stroke - using a spring - and presses it out of the outlet nozzle by thumb pressure in the next step. Small check valves open and close, depending on the direction. Air flows in and fills the empty space above the dwindling contents.

Stable bag

Now a second pump, the air pump, is added. Its pressure disc sticks to the same movable tube above the lotion pump, through which the content rises and drips into the hand. However, this second pump does not suck in liquid but air. When a dose of lotion flows from the inside the container to outside, air is drawn from the outside to the inside at the same time.

The filter elements decontaminate the air. The air pump builds up an overpressure in the container, so that the patent has a further advantage in addition to the hygienisation: the container does not have to be dimensionally stable. It may be a "flexible product container", such as the widely used refill packs for hand washing soap. The overpressure gives them the same firm stability as the carbonic acid gives the actually creasable mineral water bottles.

According to Friedrich Fischer, head of Fischer Planning, this sterilising dispenser technology allows skin and face care product manufacturers to rethink the usual concentration level of preservatives and to reduce it. His company already plans to set up a corresponding production line to supplement the production of large filter systems. However, the granting of licenses is also under discussion. □

NEWS



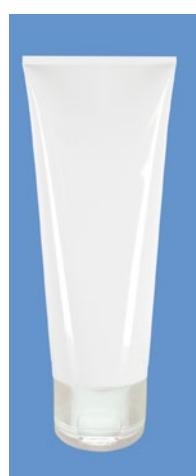
INCREASING THE RECYCLING RATE

HERMA | For the first time, using materials supplied by Polifilm and Herma, schäfer-etiketten is producing a label recovered entirely from PE packaging. Equipped with a wash-off adhesive, the label is claimed to pave the way for recycling large quantities of plastic packaging. The project has been nominated for the Plastics Recycling Awards Europe. schäfer-etiketten has produced a PE label consisting entirely of post-consumer recycled (PCR) material recovered from milk bottles. Even the masterbatch containing the white pigment is a PCR PE product.

www.herma.de

Flexible tubes for hydroalcoholic solutions

CTL PACKAGING | The CTL-TH Packaging group launches a specific production plan for flexible tubes for the packaging of hydroalcoholic solutions at a European level, in order to quickly serve its customers, reducing delivery times from the usual 60/80 days to 15 days. The "Easy Supply Tube" ("ESTube") product, used for this campaign and based on patented process for the manufacture of injected flexible plastic tubes, reduces development and change times by reference allowing maximum agility, guaranteeing the most high-quality standards. The group has several "ESTube" manufacturing lines which allows to have a great capacity to respond to an urgent and growing demand for packaging for hydroalcoholic solutions.



www.tuboplastctl.com

FROSTED FINISH

QOSMEDI | The popular black and white round twist-up deodorant containers have a new addition to the collection. These bottom-fill, 31 ml, 1.05 oz. plastic containers are now available with a frosted finish. Highly popular with cannabis health and beauty brands, these items are claimed to be well suited for packaging body balms, deodorants, solid sunscreens, cosmetics, and more. Easy to use, just twist the dial at the bottom to advance the formula upward. The pack out can be customized, coloured, or added a logo.

www.qosmedix.com



New tube maintains shape



HOFFMANN NEOPAC | Developed by subsidiary 3D Neopac, the new "Spring-Tube" is specially designed to maintain its shape while delivering a host of additional benefits for consumers, brand owners and manufacturers. Featuring a tamper-evident, push-on flip-top cap, the printer-friendly tube can be decorated via digital, flexo and metallic foil processes. For product protection, an ethylene vinyl alcohol (EVOH) barrier is claimed to preserve oxygen-sensitive formulas and helps extend the shelf life of beauty and personal care products.

www.neopac.com

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SKIN CARE FOR ALL TYPES

Target groups | As consumers become more connected, they are learning about and adopting beauty trends from other parts of the world. A, C, J and K stand for the beauty trends which have had the most success.



» **Jennifer Barachet**,
product marketing lead,
Barcelona, Spain,
www.quadpack.com

A-Beauty (Australian)

Pure, organic ingredients are the secrets of the healthy Australian look. Their glowing and sun-kissed skin effect is due to a simple beauty routine, with few steps. Clean formulas,



The plastic panstick is well suited for products with sunscreen.

local origin, and sunscreen are their favourite themes. Consumers often prefer simple and multi-purpose solutions that complement simplified beauty routines. **Airtightness provides protection for the organic ingredients** often used in A-beauty products, shielding them from oxidisation. The viscosity of the formula and ease of application make pansticks and sunscreens – ever popular in Australia – the perfect fit. The use of PP, a recyclable material, in all components also means excellent compatibility and sustainability. What's more, pansticks answer the multi-use trend for those products that combine SPF with foundations and other cosmetics.

C-Beauty (Chinese)

As China has become a global leader thanks to its industrial power and avid consumers market, the C-beauty trend is here to stay. Marked by a mix



Spray pump packs with a wooden collar stand for the combination of innovative and traditional elements.

of innovative and traditional Chinese elements, their beauty products tap into the power of ancient ingredients while appealing their affordable price and high quality.

Wood is an ancient, natural material that appeals to the senses. Incorporating **wooden elements into modern beauty packaging** like a spray pump pack reflects C-Beauty's juxtaposition of tradition and innovation. Using wood that comes from sustaina-

bly managed forests makes it an endlessly renewable resource.

J-Beauty (Japanese)

Skincare is serious business in Japan. Concerned about formulas, efficacy and the science behind their products, consumers need to be 100% certain of the qualities and benefits of every purchase. They're focused on high-quality ingredients, although with a "slow beauty" approach welcome, as long as the products have been rigorously tested. **High-tech packaging** such as airless dispensers are a perfect match with J-Beauty products. Airless dispensers already convey a certain elegance and a touch of luxury through their structure. That makes them ideal for the sophisticated products of J-Beauty brands. The timeless design inspires confidence

while the package's soft touch and premium finish appeal to the senses. Featuring state-of-the-art airless technology, the airless dispenser provides high-tech formulations with proven, powerful protection from external contamination.



The combination of high-tech packaging and elegant goes well with J-Beauty.

K-Beauty (Korean)

For the last few years, K-Beauty products have attained great commercial success, thanks to the creativity and original design of its cosmetics. Disruptive formulas and formats make it a "fun" trend, where **consumers can play with sticks, masks and "mix it yourself" products**. The long beauty routine with several steps opens endless possibilities to innovate. For an ultra-luxury experience, massage tools in jade and rose quartz support the holistic wellness routines so beloved in Korea. Also, products that make it easy and fun to blend, brush, blot, massage, buff and exfoliate are welcome to that target group. □



Massage tools in green jade and bright rose quartz are often used in Korean beauty routines.

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MARKETING

Borderline Products: Cosmetics or not? p 46
Green lungs p 48



BORDERLINE PRODUCTS: COSMETIC OR NOT?

Regulations | Sometimes it is unclear whether a certain product can be classified a cosmetic product or whether it falls under another product category. A binding international regulation is missing.



► **Dr Andreas Reinhart**
lawyer and
managing partner,
Munich, Germany,
www.reinhart.legal

In the case of borderline products, the assessment of whether a product is indeed a cosmetic product has to be made on the basis of a case-by-case assessment, taking into account all characteristics of the product, according to Recital (7) of Cosmetic Products Regulation (CPR) 1223/2009¹.

The delimitation follows from the detailed definition of a cosmetic product, which refers both to the use of the product and its main purpose of the use. According to Article 2 (1) of CPR 1223/2009² a cosmetic product is any substance or mixture intended

to be placed in contact with the external parts of the human body (in particular epidermis, hair system or nails) or with the teeth and the mucous membranes of the oral cavity with a view exclusively or mainly to cleaning them, perfuming them, changing their appearance, protecting them, keeping them in good condition or correcting body odours. This definition leaves room for manoeuvre but is limited by Article 2 (2) of CPR 1223/2009³. A substance or mixture intended to be ingested, inhaled, injected or implanted into the human body is not be considered a cosmetic product.

Guidance documents to simplify classification

The European Commission has published guidance documents to facilitate the classification of the legal product status as well as the **Border-**

line Manual, a manual on the scope of application of the Cosmetic Products Regulation. Prepared by a working group on EU level, this manual is not legally binding and serves only as a tool. Even so, it remains a document which was elaborated by a group of experts from the national authorities, the Commission's services and professional associations of the industry. Therefore, it may still provide useful information for the interpretation of the scope of application of the CPR (see Court of Justice of the European Union: Case C-308/11 Chemische Fabrik Kreussler [2012], para. 25)⁴.

Consequently, the national court may take the Borderline Manual into consideration even though it only provides indications. The manual contains illustrative and non-exhaustive examples. Therefore, it is pointed out in many parts of the manual that the

relevant question has to be assessed on a case-by-case basis. An example of a typical cosmetic product are anti-wrinkle products which are named in Recital (7) of CPR 1223/2009 (former Annex I to Directive 76/768/EEC)⁵. The Borderline Manual states that anti-wrinkle products are cosmetic products “in principle;” Then, the manual goes to declare that that products presented as anti-wrinkle which significantly restore, correct or modify physiological functions by exerting a pharmacological action would not be cosmetic products. As a result, it also runs in this case, **that the decision on the qualification of the products has to be made by the national competent authorities**, on a case-by-case basis, taking into account all the relevant elements.

Another interesting entry in the Borderline Manual is the question about products claiming aromatherapy. The manual states that the term “aromatherapy” is often found on the labelling of products which contain essential oils or other plant extracts, which does not prevent a product to be qualified as a cosmetic if it complies with the definition of cosmetic products. The manual also points out that there is **no harmonised definition of aromatherapy across the EU**. Therefore, a uniform, EU-wide classification of a product is not possible.

National decision

Perhaps the biggest borderline dispute is between cosmetic and medicinal products. The decision whether the product is a cosmetic or medicinal product “by virtue of presentation” is to be taken on a national level. The consumer expectations are determined according to the respective language comprehension, the traditions and cultural conditions. In this context, the common criteria set out in the Annex of Regulation 655/2013 for the justification of claims used in relation to cosmetic products may be used.

Accordingly, the acceptability of a claim is based on the perception of the average end user of a cosmetic product, a consumer who is reasonably well-informed and reasonably

observant and circumspect, taking into account social, cultural and linguistic factors in the market in question. The consumers’ expectations may therefore vary from one member state to another.

As Community law stands, it is still possible that differences will continue to exist between member states in the classification of products. It cannot be ruled out that one member state may consider that a product is a medicinal product by function whereas another member state may take the view that, according to current scientific knowledge, it has not been proved that that product is a medicinal product by function (see Court of Justice of the European Union: Case C-140/07 Hecht-Pharma [2005], para. 28; Case C-211/03 HLH Warenvertrieb and Orthica [2005], para. 56).

Nonetheless, as union law currently stands, until harmonisation of the measures necessary to ensure the protection of health is more complete, differences in the classification of products as between member states will continue to exist. Symmetries in scientific information, new scientific developments and differing assessments of the risks to human health and the desired level of protection can explain why different decisions are taken by the competent authorities of two member states as regards to the classification of a product (see Court of Justice of the European Union: Case C-109/12 Laboratoires Lyocentre [2013], para. 45).

Future harmonisation?

However, the European legislator intends to further promote harmonisation by creating the possibility of making a Union-wide decision regarding the regulatory status of a product. For this reason, the Regulation (EC) No 1223/2009 has been amended to empower the Commission to determine whether or not a product falls within the definition of a cosmetic product. Such possibility already exists in the directives on medical devices (90/385/EEC and 93/42/EEC) and is kept in the new Regulation (EU) 2017/745 on medical

devices (MDR) which will come into effect starting 26 May 2020. It also exists in the Regulation (EU) No 528/2012 on biocidal products (BPR). These precedents should facilitate the adoption of EU-wide decisions regarding ‘borderline’ cases where the regulatory status of a product needs to be clarified.

The amendment to the CPR 1223/2009 is governed by the new Regulation (EU) 2017/745 on medical devices (MDR) and will also come into effect starting 26 May 2020. In Article 2 of Regulation (EC) No 1223/2009, the following paragraph is added:

“4. The Commission may, at the request of a member state or on its own initiative, adopt the necessary measures to determine whether or not a specific product or group of products falls within the definition ‘cosmetic product’. Those measures shall be adopted in accordance with the regulatory procedure referred to in Article 32(2).”

This new Article 2 (4) of CPR 1223/2009 makes it legally possible to take a Union-wide decision about a product or a product group’s qualification as a cosmetic product, it remains to be seen whether it will actually be possible in individual cases to achieve a uniform classification throughout the EU.

The Standing Committee on Cosmetic Products will assist the Commission in the status review, thus allowing member states to contribute their views. This means that member states can contribute their views. Ultimately, it always depends on an assessment on a case-by-case basis, taking into account all the relevant elements. □

The manual contains illustrative and non-exhaustive examples that cannot replace a case-by-case assessment.

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1. Recital (7) of Cosmetic Products Regulation (CPR) 1223/2009: (7) The assessment of whether a product is a cosmetic product has to be made on the basis of a case-by-case assessment, taking into account all characteristics of the product.
2. Article 2 (1) of CPR 1223/2009
3. Article 2 (2) of CPR 1223/2009
4. Court of Justice of the European Union: Case C-308/11 Chemische Fabrik Kreussler [2012], para. 25
5. Recital (7) of CPR 1223/2009 (former Annex I to Directive 76/768/EEC)





► Christian Lüke

head of marketing,
Hamburg, Germany,
www.duellberg-konzentra.de

"AND INTO THE FOREST I GO, TO LOSE MY MIND AND FIND MY SOUL."

John Muir, naturalist, 1838-1914

For a long time, the sea, the coast and beaches were the epitome of relaxation, recreation, fresh air and a healthy climate. Now, people are flocking to forests to re-experience a side of nature that is lacking in our everyday lives. This renaissance comes as no great surprise. As awareness of environmental issues rises, people are paying more attention to forests and woods as original ecosystems. Forests convert carbon dioxide into oxygen and biomass, purify water, protect against natural hazards and supply timber, one of our most important renewable resources.

But that's not all that forests have to offer. Forest smells and dappled lighting are a pleasure for all senses. The silence interspersed with natural sounds has a relaxing effect. Green is soothing for the eyes. Most importantly, **forests have a discernibly positive effect on health**. Forests have long occupied a special place in Japanese culture. Shinrin Yoku, "bathing in the atmosphere of the forest", is practically considered a form of individual preventive health care. In the 1980s,

Japanese scientists started studying the beneficial medical effect of forest bathing, and Japanese universities now offer forest medicine as a specialisation for physicians.

The influence on health

Forests can offer considerable health benefits; studies have shown forests offer measurable health benefits that a stroll through a forest can lower the heart rate and blood pressure, and **significantly reduce levels of the stress hormone cortisol**... What's best: all it takes is twenty to thirty minutes daily to reap these benefits. The immune system also benefits. After only one day in the woods, the number of defence cells in human blood rises by nearly 40%, and this result lasts for a week. Experts now recommend forest "bathing" to counteract high blood pressure, high stress levels and depression.

The Austrian biologist Clemens Arvay has coined the term "biophilia effect" to describe the benefits, stating that **the biochemical cocktail of a forest has a healing effect on humans**. This cocktail consists largely of terpenes, which are volatile organic substances. These botanical fragrances are found in herbs such as

thyme or rosemary, as well as in conifers.

Perfumer Scott Moroschan believes that these fragrances can be isolated by water vapor isolation from needles, cones, twigs or shavings. The essential oils obtained in this way differ depending on the tree. Moroschan speaks of each tree's own olfactory fingerprint. Cedar, Swiss stone pine, pine or silver fir - each variety conveys the idea of a forest with an individual scent.

Forest for the home

Forests have arrived in personal care, fine fragrances and home care. The proportion of products on the market is increasing. There are fragrances with spruce notes, shower gels with a conifer fragrance or candles that bring the forest into the home. Specialised manufacturer offer forest bathing additives. Essential oils of pine needles combined with juniper, ingredients such as woodruff and spruce balm, laurel, tree moss and tree bark have been included in shower gels for men. The aim is to allow consumers to dive deeply into the soothing fragrance universe of the forest with all its relaxing effects.



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others
most important product/service

ACME Cosmetic Components Europe GmbH, acecon@acmecomponents.com, www.acmecomponents.com	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	gadgets
Adelphi Healthcare Packaging, nicola.jones@adelphi.uk.com , www.adelphi.uk.com	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	packaging machinery				
AISA Automation Industrielle SA, info@aisa.com , www.aisa.com	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	machines f.t. production of laminate + plastic tube packaging				
Allen Coding GmbH, w.schicks@allencoding.com , www.allencoding.com	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	coding machines
Angelika Schneider -Consulting & Cosmetic Services, as@cosmetic-services.de , www.as-cosmetic-services.de	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	CPSR
Anton Paar Germany GmbH, info@anton-paar.com , www.anton-paar.com	<input checked="" type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	stability testing
artefactum, info@artefactum.biz , www.artefactum.biz	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	r&d, production, filling
Ballerstaedt & Co. OHG, info@ballerstaedt.de , www.ballerstaedt.de	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	aluminium seal closures, sealing machines
BAV Institut GmbH, bernhard.fellenberg@bav-institut.de , www.bav-institut.de	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	microbiology
Brookfield AMETEK Engineering, brookfield.de@ametek.com , www.brookfieldengineering.com	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	rheometers, viscometers, texture analyzers
Carecos Kosmetik GmbH, e.galante@carecos.de , www.carecos.de	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	full service for cosmetics
CBV Christoph Binder Verpackungsmaschinen, christoph.binder.pack@gmx.de , www.cbv-pack.de	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	packaging machinery
Conor Consulting, conorbernhardt@t-online.de , www.conor-bernhardt.de	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	safety assessments
Coolike Regnery GmbH, info@coolike.de , www.coolike.de	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	industry standard software f. cosmetic laboratories
Coptis, contact@coptis.com , www.coptis.com	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	GMP ISO: 22716
cosmetri GmbH, info@cosmetri.com , www.cosmetri.com	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	aerosol valves
Coster Tecnologie Speciali S.p.A., sales@coster.com , www.coster.com	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	test apparatus, analytical instrumentation
DataPhysics Instruments GmbH, sales@dataphysics.de , www.dataphysics.de	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	blow & injection moulding machines
Dave Technical Services, contact@davetechnical.com , www.davetechnical.com	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	consultants, developing new compositions, toxicological safety reports
Dr. Lautenbacher Sachverständigenbüro GmbH, info@svb-lautenbacher.de , www.svb-lautenbacher.de	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	contract services
Dr. Schröder Cosmetica GmbH & Co. KG, s.brueckl@dr-schroeder-cosmetica.de , www.ds-schroeder-cosmetica.de	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	promotional displays, smart SRP solutions
DS Smith Packaging Deutschland, contact.sales@dsmith.eu , www.ds-smith-packaging.fr	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	vacuum processing units UNIMIX

company, e-mail, website	measurement + control equipment	laboratory equipment	mixing, dispensing	separating, technical filters	weighing, dosing	pumps, pigs, conveyor tech., handling	services	software for production + R&D	production equipment, filling machines	machines f. packaging, filling, labelling	machines f. moulding & prod. of packaging material	others	most important product/service
ELS European Labelling System GmbH, s.bolzer@els-gmbh.de, www.els-gmbh.de	○	○	○	○	○	○	○	○	●	○	○	○	progressive branding, labelling and coding
EquipNet, sales@equipnet.com, www.equipnet.com	○	○	○	○	○	○	○	○	●	○	○	○	marketplace
ESPERA-Werke GmbH, info@espera.de, www.espera.de	○	○	○	○	○	○	○	○	●	○	○	○	labelling machines
Etiket Schiller GmbH, j.mueller@etiket-schiller.de, www.etiket-schiller.de	○	○	○	○	○	●	○	○	●	○	○	●	label printing and services
Felten, tom.urban@gmx.de, www.felten-group.com	○	○	○	○	○	○	●	○	○	○	○	○	manufacturing execution system
Gernek GmbH, info@gernek.de, www.gernep.de	○	○	○	○	○	○	○	○	●	○	○	○	Soluta
GRAFE Advanced Polymers GmbH, marketing@grafe.com, www.grafe.com	○	○	○	○	○	●	○	○	○	○	○	○	color preview/forecast, masterbatches.
Gräfe-Druck & Veredelung GmbH, info@graefer-druck.de, www.graefer-druck.de	○	○	○	○	○	●	○	○	●	○	○	○	foil lamination, print finishing
Hastamat Verpackungstechnik GmbH, jjung@hastamat.com, www.hastamat.com	○	○	○	○	○	○	○	○	●	○	○	○	packaging machinery, check weighers
Hauser Maschinen e.K., info@hauser-maschinen.de, www.hauser-maschinen.com	○	○	○	○	○	○	○	○	●	○	○	○	2nd hand machines
Haver & Boecker Particle Analysis, pa@haverboecker.com, www.haverboecker.com	○	○	○	○	○	○	●	○	○	○	○	○	particle analysis
Hello! cosmetic projects, hello@cosmetic-projects.de, www.cosmetic-projects.de	○	○	○	○	○	●	○	○	○	○	○	○	market launch safety (PIF; CPSR), claims, CPNG
HMC Europe GmbH, info@hmc-europe.com, www.hmc-europe.com	○	●	○	○	○	●	○	○	○	○	●	○	autoclave
HNP Mikrosysteme GmbH, doerte.hoffmann@hnp-mikrosysteme.de, www.hnp-mikrosysteme.de	○	●	●	○	●	●	○	○	●	●	○	○	precise pumps + dosing systems
Homburg Verpackungstechnik, info@homburg-verpackungstechnik.de,	○	○	○	○	○	○	○	○	○	●	○	○	tube sealing, tube filling machines
Hugo Beck Maschinenbau GmbH & Co. KG, hornung@hugobeck.de, www.hugobeck.de	○	○	○	○	○	●	○	○	●	○	○	○	form, fill and seal machines
Innova Films Ltd, packaging@innovafilms.com, www.innovafilms.com	○	○	○	○	○	●	○	○	○	○	○	○	BOPP
ISRA Vision AG, info@isravision.com, www.isravision.com	○	○	○	○	○	○	○	○	●	○	○	○	inspection machines for packaging
iTech Graphic GmbH, itech-Graphic@digitran.de, www.digitran.de	○	○	○	○	○	○	○	○	●	○	○	○	digital heat transfer printing
JOVIS enterprises Ltd. , sheller@jovis.ch, www.druid.ch	○	○	○	○	○	○	●	○	○	○	○	○	formulation & regulatory affairs software
Jürgen Hasel Kosmetische Entwicklungen e.K., juergen.hasel@hasel.eu, www.hasel.eu	○	○	○	○	○	●	○	○	○	○	○	○	safety assessments
KARL KNAUER KG, info@karlknauer.de, www.karlknauer.de	○	○	○	○	○	●	○	○	●	○	●	○	folding boxes, blistercards, displays, machines
Klar + Partner AG, info@klar-partner.de, www.klar-partner.de	○	○	○	○	○	○	○	○	○	●	○	○	formulation management & software
Krüss GmbH, info@kruss.de, www.kruss-scientific.com	○	●	○	○	○	○	○	○	○	○	○	○	mesuring instruments f. surface + interfacial tension
Linx Printing Technologies Ltd, sales@linxglobal.com, www.linxglobal.com/en-gb	○	○	○	○	○	○	○	○	○	●	○	○	coding solutions
Lödige Maschinenbau GmbH, info@loedige.de, www.loedige.de	○	○	●	○	○	○	○	○	○	○	○	○	Lödige Ploughshare mixers
LRHQ, inf@lrhq.de, www.lrhq.de	○	○	○	○	○	○	●	○	○	○	○	○	safety assessments
LUM GmbH, A.Uhl@lum-gmbh.de, www.lum-gmbh.com	●	○	○	○	○	○	○	●	○	○	○	○	particle sizing & characterization
MBC Aerosol, sales@mbc-aerosol.com, www.mbc-aerosol.com	○	○	○	○	○	○	○	○	●	○	○	○	aerosol and/or bag-on-valve machines
MC Beauty Science UG, info@mcbeauty-science.com, www.mcbeauty-science.com	○	○	○	○	○	○	●	○	○	○	○	○	r&d, formulations, production, facial masks, CBD + other actives
Mimaki Europe BV, info@mimakieurope.com, www.mimakieurope.com	○	○	○	○	○	○	○	○	●	○	○	○	high performance printing solutions
Minebea intec GmbH, industrialweighing@minebea-intec.com, www.minebea-intec.com	○	○	○	○	○	○	○	●	○	○	○	○	weighing, inspection
Minebea Intec GmbH, corporate.communications@minebea-intec.com, https://www.minebea-intec.com/	●	●	○	○	○	●	○	●	●	●	●	○	weighing + inspection solutions
Novexx Solutions GmbH, solutions@novexx.com, www.novexx.com	○	○	○	○	○	○	○	○	●	○	○	○	labelling machines
Omron Adept Technology GmbH, info.de@adept.com, www.adept.de	○	○	○	○	○	○	○	○	●	○	○	○	packaging robots
OPTIMA consumer GmbH, carmen.spitzenberger@optima-packaging.com, www.optima-packaging.com	○	○	○	○	●	●	○	●	●	●	○	○	filling and closing machines
Optima consumer GmbH, consumer@optima-packaging.com, www.optima-packaging.com/consumer	○	○	○	○	○	○	○	○	●	○	○	○	modular machine concepts
Packservice PS Karlsruhe GmbH, info@packservice.com, www.packservice.com	○	○	○	○	○	○	●	○	○	○	●	○	co-packing
Pamasol Willi Mäder AG, info@pamasol.com, www.pamasol.com	○	○	○	○	○	○	○	○	○	●	○	○	aerosol filling lines
PANalytical GmbH, regina.heppner@panalytical.com, www.panalytical.com	●	●	○	○	○	○	○	●	○	○	○	○	X-ray diffractometers , XRF spectrometers
Paul Leibinger GmbH & Co. KG, info@leibinger-group.com, www.leibinger-group.com	○	○	○	○	○	○	○	○	●	○	○	○	coding solutions
pester pac automation GmbH, info@pester.com, www.pester.com	○	○	○	○	○	○	○	○	●	○	○	○	end-of-line packaging machinery

○ no
● yes

company, e-mail, website

	measurement + control equipment	laboratory equipment	mixing, dispensing	separating, technical filters	weighing, dosing	pumps, pigs, conveyor tech., handling	software for production + R&D	production equipment f. packaging, filling, machines	machines f. moulding & prod. of packaging material	others	most important product/service	
PKB Packaging Machinery, th.werner@pkbmachines.com, www.pkbmachines.com	○	○	○	○	○	○	○	○	●	○	○	cosmetics, toiletries & fragrance filling lines
Polpak Sp. z o.o., biuro@polpak.pl, www.polpak.packaging.pl	○	○	○	○	○	●	○	○	○	○	○	closures
PROCME GmbH, marketing@procme-gmbh.de, www.procme-gmbh.de	○	○	○	○	○	○	○	○	●	○	○	packaging technology
QACS Ltd., info@qacs.gr, www.qacs.gr	○	●	○	○	○	●	○	○	○	○	○	the challenge test laboratory
Rationator-Maschinenbau GmbH, sales@rationator.de, www.rationator.de	○	○	○	○	○	○	○	○	●	○	○	flexible bottle handling, filling and capping machines
roTeg AG Roboter Technologie, kontakt@roteg.de, www.roteg.de	○	○	○	○	○	○	○	○	●	○	○	roboter technology
Rychiger AG, sales@rychiger.com, www.rychiger.com	○	○	○	○	○	○	○	○	●	○	○	filling & sealing solutions
Saralon GmbH, info@saralon.com, www.saralon.com	○	○	○	○	○	●	●	○	○	○	○	printed electronics f. smart packaging + print media applications
Saueressig GmbH & Co. KG Matthews Marking Systems, , www.sgkinc.com	○	○	○	○	○	●	○	○	●	○	○	gravure technology inovation
Sawa Pumpentechnik AG, info@sawa.ch, www.sawa.ch	○	○	○	○	○	●	○	○	○	○	○	pumps
Schäfer & Flottmann GmbH & Co. KG, sales@sfs-net.de, www.sfs-net.de	○	○	○	○	○	○	○	○	●	○	○	end-of-line packaging machines
Schilling Engineering, info@schillingengineering.de, www.schillingengineering.de	○	●	○	○	○	○	○	○	●	○	○	cleanroom technology
Schmid Rhyner AG, s.kathriner@schmid-rhyner.ch, www.schmid-rhyner.de	○	○	○	○	○	○	○	○	●	○	○	coating
Schubert Cosmetics a Unit of Schubert Packaging Systems GmbH, info@schubert-packaging-systems.com, www.schubert.group/de/kosmetik.html	○	○	○	○	○	○	○	○	●	○	○	highly flexible filling + packaging machines
Schumacher Packaging GmbH, info@schumacher-packaging.com, www.schumacher-packaging.com	○	○	○	○	○	○	○	○	●	○	○	packaging solutions f. corrugated + solid board
Schwarze Automation GmbH, contact@schwarze-automation.com, www.schwarze-automation.com	○	○	○	○	○	○	○	○	●	○	○	Stickpack
Seal Master Corp., info@sealmaster.com, www.sealmaster.com	○	○	○	○	○	○	●	○	○	○	○	reinforced inflatable seals
Serac Groupe Supply and Support, serac@serac.fr, www.serac-group.com	○	○	○	○	○	○	○	○	●	○	○	manufacturing machines f. thermoformed bottles
SH.SAFE-cos, sh@sh-safe-cos.de, www.sh-safe-cos.de	○	○	○	○	○	●	○	○	○	○	○	safety assessments (PIF, CPSR, CPNP, claims)
Signum Computer GmbH, sales@signum-vision.de, www.signum-vision.de	○	○	○	○	○	○	●	○	○	○	○	quality control, optical surface inspection
Skinobs, www.skinobs.com	○	○	○	○	○	○	●	○	○	○	○	cosmetic testing platform software
Software Company Amic GmbH, hc@amic.de, www.amic.de	○	○	○	○	○	○	●	○	○	○	○	ERP software A.eins
Spectro Analytical Instruments GmbH & Co. KG, spectro.info@ametek.com, www.spectro.com	○	○	○	○	○	○	●	○	○	○	○	X-Ray fluorescence instruments, ICP-OES analyzers
Spetec GmbH, ruth.rickert@spetec.de, www.spetec.de	○	●	○	○	○	●	○	○	○	●	○	cleanroom
Spetec GmbH, info@spetec.de, www.spetec.de	○	○	○	○	○	○	○	○	●	○	○	clean room solutions
StratiCELL SA / NV, info@straticell.com, www.straticell.com	○	○	○	○	○	●	●	○	○	○	○	efficacy testing using reconstructed epidermis models
Symex GmbH & Co. KG, info@symex.de, www.symex.de	○	○	●	○	○	○	○	○	●	○	○	vacuum-, mixing and homogenizing systems
Synopac AG, info@synopac.ch, www.synopac.ch	○	○	○	○	○	○	○	○	●	○	○	packaging concepts
Syntegon ehem. Bosch Packaging Technology, info@syntegon.com, www.syntegon.com	○	○	○	○	○	○	○	○	●	○	○	packaging technology
Syntegon Technology GmbH, info@syntegon.com, www.syntegon.com	○	○	○	○	○	○	○	○	●	○	○	packaging technology
Systec & Solutions GmbH, talk@systec-solutions.com, www.systec-solutions.com	○	○	○	○	○	●	●	○	○	○	○	IT solutions for the cosmetics industry
Terco Inc., sales@terco.com, www.terco.com	○	○	○	○	○	○	○	○	●	○	○	aerosol filling, liquid filling, puck handling
Valmatic s.r.l., commerciale@valmaticsrl.com, www.valmaticsrl.com	○	○	○	○	○	○	○	○	●	○	○	unidose systems, filling machines
Velox Pure Digital, merav.sheffer@velox-digital.com, www.velox-digital.com	○	○	○	○	○	○	○	○	●	●	○	digital printing solutions for tubes
ViscoTec Pumpen- und Dosiertechnik GmbH, marketing@viscotec.de, www.viscotec.de	○	●	●	○	●	●	○	○	●	●	○	fluid dosing
Wareg Verpackungs-GmbH, Info@wareg-gmbh.de, www.wareg-gmbh.de	○	○	○	○	○	○	○	○	●	○	○	tubes, bottles, mini-roll-ons, dispenser systems, applicators
Wilhelm Werner GmbH, info@werner-gmbh.com, www.werner-gmbh.com	○	●	○	○	○	○	○	○	○	○	○	purified water for cosmetic and API production
Will & Hahnenstein GmbH Reinstwassertechnik, info@werner-gmbh.com, www.will-hahnenstein.de	○	○	○	○	○	○	○	○	●	○	○	melting equipment
Winopal Forschungsbedarf, info@winopal.com, www.winopal.com	○	○	○	○	○	○	○	●	○	○	○	material testing, texture analysis, fragrance & odour analysis
Ystral GmbH, ystral@ystral.de, www.ystral.com	○	○	○	○	○	○	○	○	●	○	○	machine Conti-TDS
Zarges Leichtbau GmbH, marketing@zarges.de, www.zarges.de	○	○	○	○	○	○	○	○	○	●	○	aluminium ladders and boxes
Zigler Polska Spzoo, biuro@zigler.pl, www.zigler.eu	○	○	○	○	○	○	○	○	●	○	○	aerosols

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MIXING TOOLS

Technology | Mixing or blending is a unit operation which, in any transformation process, consists of combining components to produce a homogenous or a heterogenous final product. It is essential in various applications, including cosmetics



» **Nesrin Hesso,**
process engeneering,
R&D department, VIM,
Saint-Hilaire-de-Loulay, France,
www.vimixing.com

Mixing involves different mechanisms depending on the application: homogenisation, suspension, dissolution, dispersion, emulsification, and so on. The aim is always to achieve a finished or semi-finished product with the targeted properties. Choosing the right equipment and understanding the process parameters are important drivers to achieve productivity and quality. **The mixing unit then should be adapted in sizing, power and process parameters** of what the mixtures consist of: liquid-liquid, solid-liquid, gas-liquid or complex rheology mixtures. In cosmetic applications, in order to choose the right mixing

equipment with the right mixing tools, different factors should be considered:

- product characteristics,
- technical data (processes parameters, implantation,...) and
- economic situation (world region, market for the application, ...).

Here are the steps to follow for choosing and optimising the mixing unit. It starts by the mixture type, follows by the mixing unit and ends by the mixing parameters.

Mixture types and mixing units

To choose the right mixing tool, different mixtures will be illustrated below:

1. Liquid-Liquid mixture: miscible or immiscibles
2. Solid-Liquid mixtures: soluble powders or insoluble powders
3. Complex rheology mixture: high viscosity

Liquid-Liquid mixtures

The mixture of miscible liquids is aimed for homogenisation or dilution applications. It can be a thermal or chemical homogenisation. The mixing criteria are focused on the pumping capacity of the tools and the flow generation inside the mixing unit. Simple tools are recommended, especially the axial flow propellers. Another case could be immiscible



figure 1: Step for mixing tools determination in cosmetic application.



figure 2: This 4-blades mixer is one tool used for miscible liquid-liquid mixing.



figure 3: The "saw tooth propeller" and the rotor/stator are used for immiscible liquid-liquid mixing.

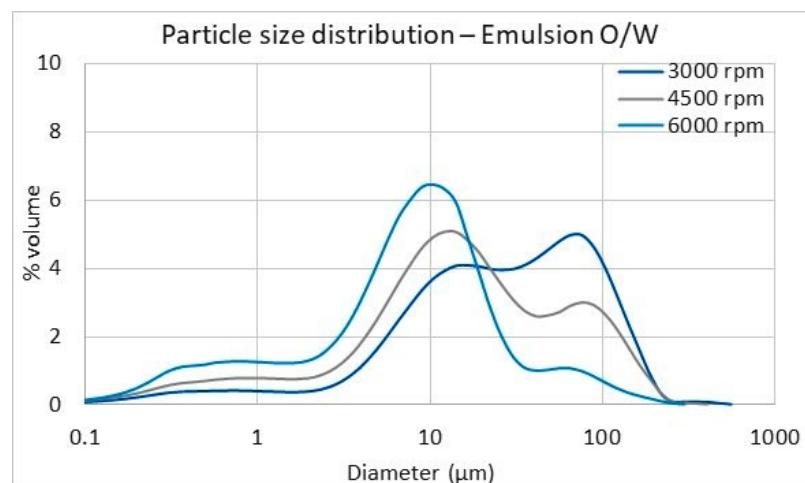


figure 4: Particle size distribution of O/W emulsion under three rotation speeds – Rotor/stator

liquids where shearing is needed to homogenise one liquid into another as in emulsification applications like creams. In this type of mixture, the ability to shear and reduce aggregates are crucial for the product quality. The best tools are radial flow propellers and rotor-stator. An example of an emulsion made with a rotor-stator is illustrated below (figure 4). These curves show the impact of the rotation speed on the quality of the emulsion. Curves show that increasing the rotation speed during emulsification process decreases the medium diameter of the oil droplets. In addition, the emulsion with low rotation speed shows two population of droplets. These populations are reduced to one sharp population with high emulsification speed.

Liquid-solid mixtures

In soluble powders as for particles dissolution, the circulation and flow creation are important. Axial flow propellers are used for this application. However, when the powders are non-soluble and should be suspended in the liquid, shearing rate is needed. This shearing is important to break powders aggregates. In applications as dispersion, pasting, or suspension, radial flow tools are used.

Complex rheology mixtures

An example of gels prepared by two tools is illustrated in figure 6. The curves of the flow behaviour of gels

show the impact of the type of tool on the viscosity of the final gel. The disk type propeller is more adapted to the gel formation with more shearing than classic propeller.

Complex mixtures could be finished or semi-finished product as cosmetic creams, mascara, paints, etc. For these applications, dispersion and flow generation are both important as the final product is high in viscosity. Combination of axial and radial tools are used with a scrapper. The role of the scrapper in the mixing unit is to help the circulation of the product toward the other tools.

In short, choosing the mixing unit is essential to achieve the targeted quality of the final product. It is therefore important to understand the mixture

type before choosing the mixing equipment with the right tool. Two performance parameters should be assessed for each application to choose the right mixing tool: shearing rate and flow generation. □



figure 5: The Centripetal impeller and the saw tooth propeller are used for insoluble powder-liquid mixing.

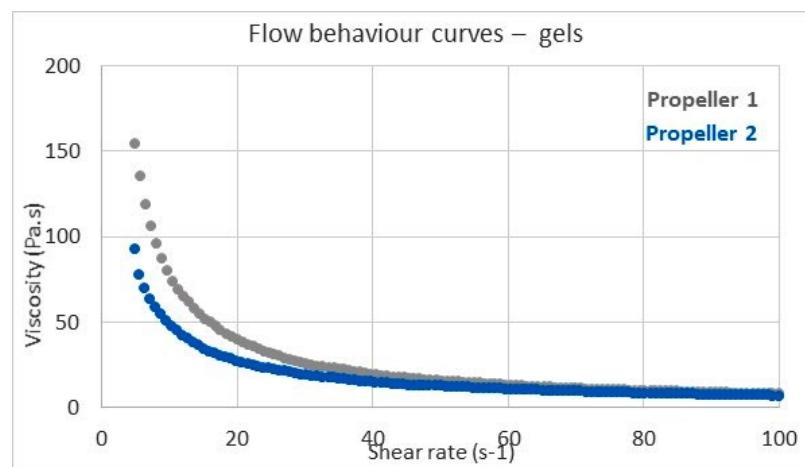


figure 6: Flow behaviour curves of gels prepared by two tools.

TREND OF TRENDS: BIOFUNCTIONALS

Interview | Nowadays consumers want to have a personal connection to the products they use on their skin. Joel Mantelin talks about the potential of biofunctionals and how they can meet customers' demands for holistic approaches.

► **Joel Mantelin,**
vice president, biofunctionals business development, Bridgewater NJ, USA, www.ashland.com.



COSSMA: What do you think are the most innovative trends in personal care now?

Joel Mantelin: My experience is that of someone with 30 years dedicated to innovation and translating the aspirations of society and consumers into active ingredients for personal care.

The easy answers are the CBD trend, clean beauty and the protections against all the different types of pollution generated by mankind and noxious to the planet, living organisms and humans (blue light pollution, fine particles, etc.). In terms of biofunctionals, which support the trends for naturability, sustainability and traceability, certainly what is happening with development of new extraction technologies is interesting. With them, we can create innovative ex-

tracts from already well known botanicals, with different and sometimes new properties.

Our industry's current challenge "how to innovate within a finite list of INCI names", that means adapting to trends, translating sociological and scientific trends into personal care, at the same time, we are always moving further into the naturals.

At Ashland we have two proprietary technologies for that purpose: the PSR Technology (Plant Small RNA), and the Zeta Fraction Technology. These technologies, when associated to local, well identified and sustainable sourcing of plants, enable to create unique stories around the origin of the ingredients, what I perceive as the "trend of trends": consumers' quest to relate personally to the products they buy, eat, and put on their skin, in order to

reconcile their philosophical approach to life with what they purchase.

Personal care products are particularly sensitive to this. Just look how the personal care products you have in your bathroom have changed during the past ten years, and the success of mobile phone apps such as Yuka.

What different trends do you see in different regions?

Nothing really in terms of sociological aspirations, scientific trends or targets. When products are designed and launched, they tend to have a global reach, and the science is universal, not regional.

It is the same for the sustainability and ecological concerns. Where we see a difference is in the selection of the botanicals, their origin, and

where they are grown. Consumers relate more with a plant when it is familiar to them and their culture; it can be either the species, or the area where the plant was grown.

What is the most important trend in the field of biofunctionals?

Pollution has become a standard stress, like UV protection; whether it comes from fine particles or from blue light. Consumers are now extremely concerned about protecting themselves from noxious substances generated by humans and industrialization. This trend is linked to the growing ecological consciousness that is perceivable at all levels of society. Clean beauty is also related to that.

Canabinoids, and products linked to the CBD receptors is trend linked to one of the fundamentals of biofunctional innovation, its inspiration from medical research.

Finally, I would mention an emerging trend: the “beauty sleep” or “clean sleep” concept. “Clean sleep” focuses on habits and behaviours that can improve the quality of sleep and help one feel better rested. Consumers understand the link between sleep and lifestyle factors with skin appearance.

What solutions does your company offer to meet these trends?

Nightessence is a natural extract from premium lavender flower using the patented and proprietary plant small RNA technology. Building on the emerging “beauty sleep” trend, this is the first biofunctional of its kind tailored to optimise skin’s night-time needs in order to awaken with a skin reset for the day ahead. It helps restore skin overnight, so it looks more rested, renewed and illuminated by morning.

The Infini’tea biofunctional is a tea serum extracted from camellia sinensis tea leaves using Ashland’s Zeta Fraction Technology. The extract provides a solution for restor-

ing a peaceful balance. Inspired by neurocosmetics and the ceremonial ritual of tea to restore the homeostasis of young, fresh and relaxed looking skin.

Ashland has explored two pathways in searching for the calming and soothing properties: the allegation that glutamate found in industrial food has been described as being responsible for worsening skin problems such as eczema; and the skin expression of BDNF (Brain Derived Neurotrophic Factor) which is upregulated during the practice of yoga.

What are the most innovative product formats with K-Beauty and what ingredients are the best for K-Beauty formulations?

I have travelled to South Korea many times, and I have always appreciated the search for beauty, aesthetics, fashion and modernity of Korean women and men, so I was not surprised when the K-Beauty trend emerged in the western world. To choose one product format, I would say the beauty masks that Koreans use extensively, which fits well with the “beauty sleep” trend, and, additionally, may well be a precursor to the cosmetics of tomorrow, when even more technology will be put into these masks.

What is your approach to blue light protection?

As I mentioned earlier, blue light protection is part of the more general “anti-pollution” trend. Ashland was the first company to launch an active ingredient, Blumilight, that addressed blue light protection through the skin’s biology.

This was our approach, and our scientists were amongst the first to evidence the presence of opsin receptors in the skin.

For me, it was a great adventure that started in the year 2014 with reading a patent from Essilor addressing blue light protection for spectacle lenses to protect from macular degeneration.

How much potential do you see in the field of microbiome protection?

Microbiome protection is an important scientific and medical approach of biology. Nevertheless, I am not sure if it is an easy marketing concept, unless linked to dermatology and a very scientific approach of skin biology.

Which of your biofunctionals works well in clean cosmetics?

Of course, Nightessences whose positioning is based on the “beauty sleep” or “clean sleep” concept.

What are your most innovative solutions in terms of sustainable biofunctionals?

Our sustainable solutions are articulated around three initiatives:

1. protecting biodiversity (up-cycling, biotechnology, and agrotechnology);
2. sustainable technologies (Zeta Fraction Technology, PSR Technology, etc.);
3. sourcing with full traceability.

In 2019, Ashland was awarded the “Best Sustainable Ingredient Award” for cb2-skin, our recent patchouli extract targeting CBD2 receptors in the skin, illustrating that sustainability is also a source of inspiration for scientific advances.

What have been the company’s most intriguing findings in recent studies?

From my point of view the most intriguing findings were around epigenetics, a subject we started to investigate 15 years ago. Since then the horizon of epigenetic research seems to broaden endlessly. Ashland has a large program for investigating the epigenetic of plants and its benefits for the skin. One of the results is our specific technology (Plant Small RNA Technology) to capture unique and unseen properties of the plants we are studying and address existing or future trends with innovative solutions. □

PEOPLE



Ivan Souza (left) and Cynthia Sinchi

ACTERA

Ivan Souza has joined the company as principal scientist, with responsibility for leading their research in functional skin biology, botanical screening, and clinical claims development. **Cynthia Sinchi** is a new member of the company's customer engagement team which is involved in developing partnerships with brands in the US professional skin care and beauty markets. She has prior experience in indie beauty and cosmetic dermatology, most recently with L'Oréal's Dermablend brand. www.acteraingredients.com



Jan Zijderveld

AVON

Concurrent with the closing of the sale of the company to Natura, **Jan Zijderveld**, Avon's CEO has handed over leadership to Natura's Executive Chairman Roberto Marques.

www.avonworldwide.com

HAIRCARE GROUP

Mattias Mußler has joined the strategic management board of the Haircare Group alongside Dr Michael Allert, Timo Allert and Dennis Böhm and the operating management team of Basler Beauty. www.haircare-group.com



Mattias Mußler

HENKEL

Marco Swoboda, 48, has been appointed CFO of Henkel. He succeeds Carsten Knobel, 50, who has taken over the po-



Marco Swoboda

sition as CEO. Swoboda started his career with Henkel in 1997 in the group's controlling/strategy unit. Following the spin-off of Henkel's chemicals division under the name Cognis, he joined the corporate development/M&A unit of the newly formed company, based in the Netherlands, in 2000. He returned to Henkel in 2006 and in 2009, he assumed in addition responsibility for corporate planning, then headed the Asia Pacific finance organisation in Shanghai and returned to Düsseldorf as corporate senior vice president finance. www.henkel.com



Ukonwa Ojo

MAC COSMETICS

Ukonwa Ojo has joined the company as Senior VP of Global Marketing. She has a 22-year track record of delivering strategies to drive marked business results. Most recently she served as Chief Marketing Officer of Consumer Beauty, Coty for brands such as Covergirl and Sally Hansen globally, and nationally for Rimmel, Sally Hansen, Clairol, and Mass Fragrances under the Coty Consumer Beauty portfolio. Before joining Coty, she held brand and general management roles at Unilever, Reckitt Benckiser, General Mills Corporation and Meadwestvaco. www.maccosmetics.com

NOBILIS

Kirsten Uchtmann has been appointed Marketing Director responsible for the entire portfolio of the Nobilis Group. She is the successor of Claudia Schnitzler who has left the company. She joined the cosmetics industry in 2000 and worked for Cosmopolitan Cosmetics/Wella. She then moved on to Procter and Gamble, first in London, then in Amsterdam and Geneva. Before her start at Nobilis, she worked for Elizabeth Arden/Revlon as a Marketing Director. www.nobilis-group.com



Kirsten Uchtmann



FAIRS, CONFERENCES AND SEMINARS

2020

WHEN?	WHAT?	WHERE?	WHO?
09.06.2020	The Healthy Bite	Rhine Falls, Switzerland	Omya International www.omya.com/events/healthybite
04.07. – 05.07.2020	BEAUTY FORUM LEIPZIG	Leipzig, Germany	Health and Beauty Germany www.beauty-fairs.com
07.07. – 08.07.2020	Make up in Shanghai	Shanghai, China	Make-up in www.makeup-in.com
03.09. – 07.09.2020	COSMOPROF WOLRDWIDE BOLOGNA	Bologna, Italy	Bologna Fiere www.cosmoprof.com
15.09. – 16.09.2020	Luxepack New York	New York, USA	IDICE Company www.luxepacknewyork.com
20.09. – 22.09.2020	COSMOPROF NORTH AMERICA	Las Vegas, USA	Bologna Fiere www.cosmoprofnorthamerica.com
28.09. – 30.09.2020	Luxepack Monaco	Monaco, Monaco	IDICE Company www.luxepack.com
30.09. – 01.10.2020	Cosmetic Business	Munic, Germany	Leipziger Messe www.cosmetic-business.com
30.09. – 01.10.2020	Suppliers' Day	New York, USA	New York Society of Cosmetic Chemists www.nyscc.org/suppliers-day
03.10. – 04.10.2020	BEAUTY FORUM SWISS	Zurich, Switzerland	Health and Beauty Marketing Swiss www.beauty-fairs.ch
21.10. – 22.10.2020	White Label World Expo	Frankfurt, Germany	Prysm Retailing www.whitelabelworldexpo.de
24.10. – 25.10.2020	BUNTE BEAUTY DAYS	Munich, Germany	Health and Beauty Germany www.bunte-beauty-days.de
11.11. – 12.11.2020	Chemspe Europe	Cologne, Germany	Mark Brooks Exhibitions www.chemspeurope.com

SUPPLIERS' GUIDE

On the following pages you will find a selection of suppliers to the cosmetic industry. The listing is in alphabetical order based on the section headings.

You can also find a full overview, with a search function, at www.cossma.com/guide

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Alternatively: You will get your company logo in your Premium Suppliers Entry for just € 80 net per month (minimum entry period: 6 months). For details, check page 67 of this print issue.

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Your non-laid out entry in this COSSMA's Suppliers' Guide, consisting of your company name and your website URL is also **free of charge** to you. To book, please send your data via email directly to beate.bantzhaff@health-and-beauty.com

Keep in mind: We can only publish your free entry in COSSMA's market survey as well as the non-laid out text entry in COSSMA Suppliers' Guide if we have your written permission to do so!

Heading

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Aerosol Packaging	Laboratory Equipment
Aluminium Seal Closures	Lanolin (Adeps Lanae)
Applicators	Lip Balm Full Service
Biodegradable Glitter	Measurement + Control
Business Consultants	Mixing + Homogenizing
Cardboard + Paper	Nutraceuticals
Carrier + Delivery Systems	Packaging
Closures, Pumps, Dispensers	Packaging Machines
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Contract Filling	Preservatives
Contract Manufacturing	Pumps, Pigs, Conveyor Belts Handling
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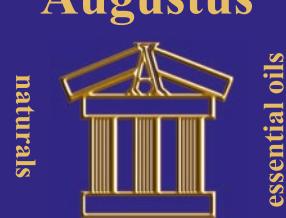
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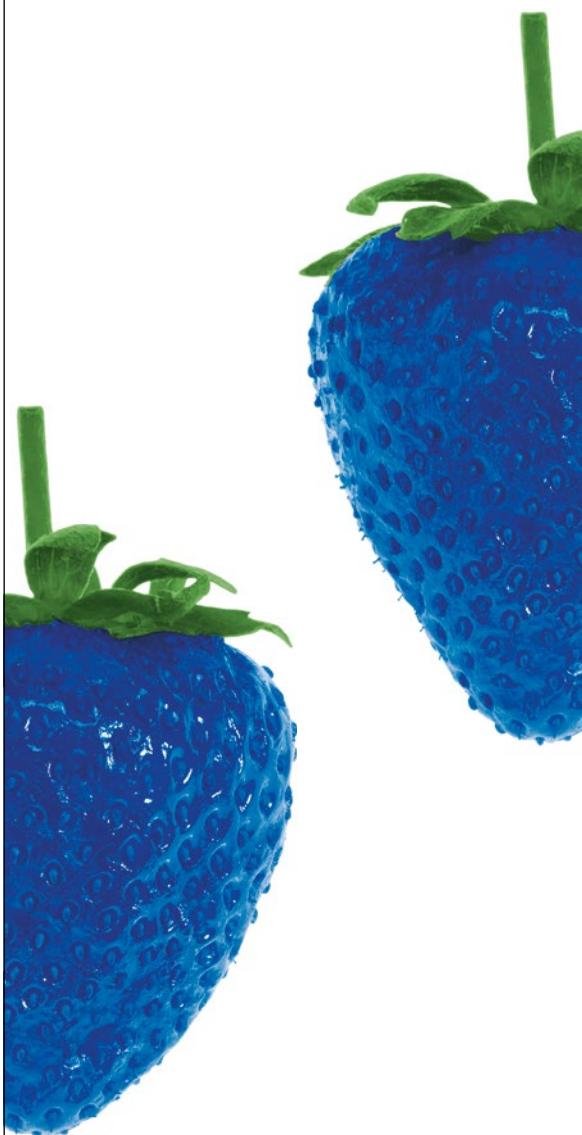
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