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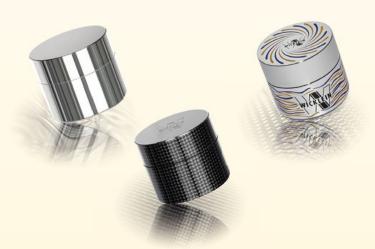
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EDITORIAL



For all of us: Sustainability

major issue that is currently occupying the media as well as companies and private individuals is sustainability. Be it the "Fridays for Future" movement, pictures of plastic-flooded beaches or the car exhaust scandals of various car manufactuers - awareness of environmental issues is growing. There is also a lot of talk about sustainability in the cosmetics industry. The market for packaging-free products is growing, creating several challenges: how to do without plastic, but also how to adapt the formulations. After all, the quality of the end products should not suffer. Sustainability should also include optimized production processes and the economical use of resources. As you can see, this is a complex issue where many different aspects have to be considered and weighed, with no easy answers. In this issue, we will pick up on elements of this topic for you in the "Ingredients", "Marketing" and "Packaging" sections. And of course you will come across this topic again at Cosmoprof Worldwide Bologna 2020 and Cosmopack. There, you can already have a look into the future through new developments and research results, and which will move the cosmetics industry in the next ten years. You will find an overview of Cosmoprof, Cosmopack and the supporting events at the trade fair on page 54.

Sincerely yours,

Georg von Griesheim, Managing Director

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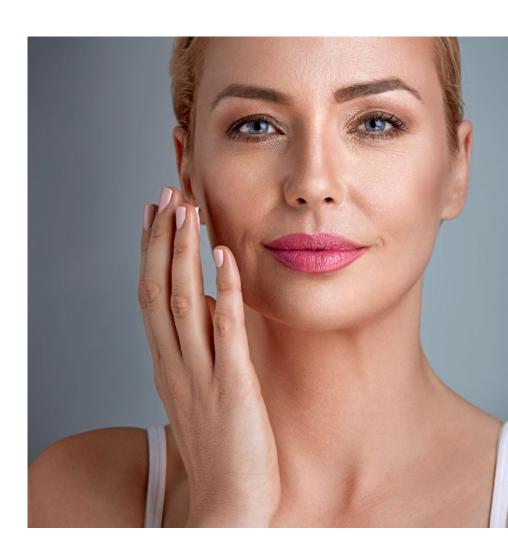


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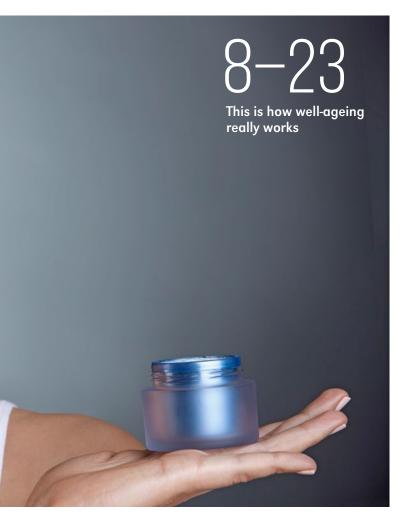


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about the company's latest achievements in sustainable packaging



CHRISTINE WILD
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ERWIN SCHUSTER
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STEFANO MEAZZA
CEO of the company Cappardoni
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provides background on their
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about the major changes in the packaging industry in the past 5 years

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GO FUTURE

AGEING

P.8 - 23





FOREVER YOUNG?

Ingredients | Recent demographic changes are having important consequences for cosmetic treatments and dermatology. The population is ageing at a rapid rate and the trend is set to continue in the next years.



AUTHOR:
Dr phil. Meike Streker: The cosmetics scientist
is an expert in evidence-based cosmetics
and has extensive experience in the field of
cosmetic and clinical research.

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ow fertility and an increased life expectancy of 78 years for men and 83 years for woman have introduced a pronounced ageing process. According to the BpB (Bundeszentrale für politische Bildung), in 1900 45 percent of the population in Germany was under 20 years old, and only 4 percent were 65 years old and older. In 2060 the proportion of the population under 20 years old will have dwindled to one third of its current level, and the proportion of people over 65 years old will increase to more than six times of the current level¹. The demographic transition is dynamic and results in an increased demand on the health sector.

Skin quality decreases

The elderly are affected by many dermatological concerns, not all of which are caused by the normal ageing process. Some of these concerns are related to individual lifestyles, cosmetic routines and additional lifelong exposure to environmental agents. The skin is in direct contact with the environment and undergoes ageing as a consequence of environmental damage. In comparison to chronological /intrinsic aged skin, which results in subepidermal atrophy, fine lines and sagging, extrinsic aged skin shows deeper wrinkles and a heterogenic pigmentation. As extrinsic skin ageing is caused by a variety of factors, cosmetic and environmental scientists use the term skin ageing exposome to describe the totality of exposures to which an individual is subjected from conception to death². According to the skin ageing exposome, skin ageing is affected by sun radiation, smoking, nutrition, physical stress, lack of sleep and pollution. As a consequence of these influencing factors the skin quality is decreased.

Significant modifications

A study from 2015 demonstrated an important impact of polluted environmental conditions on skin quality. There were significant modifications of parameters related to sebum excretion, a lower level of vitamin E and squalene in sebum. The degradation of sebum quality and quantity results in decreased skin barrier function³. Other studies showed that air pollution exposure was significantly correlated to signs of skin ageing such as pigment spots and wrinkles4. Moreover studies investigated the influence of sleep on skin quality and skin ageing. In 2010 a Swedish study showed that people are less attractive when sleep deprived compared to when they are well rested⁵. Another study from 2015 indicated that chronic poor sleep quality is associated with increased signs of ageing and diminished skin barrier function⁶. UV-radiations, as well infrared-A radiation, tobacco smoke and physical stress induce oxidative stress, a disturbance in the balance between the production of reactive oxygen species (ROS) and antioxidant defences. This, in turn, plays a major role in the ageing process. ROS can signal pathways contributory to skin ageing, for example the activation of matrix metalloproteinases (MMPs) like collagenases, which increases collagen degradation⁷.

In summary the aged face is characterized by decreased quality and quantity of sebum content, stratum corneum hydration, and hyperpigmentation like liver spots, loss of elasticity and firmness and as well wrinkles. To slow the ageing process



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four cosmetic procedures are required:

- Balance antioxidants.
- Stabilize skin barrier function.
- · Maintain and renew physiological parameters.
- · Protect against sunlight and pollu-

It's all about antioxidants

Free radicals play a major role in sun damage as well as in pollution by degrading the skin structural fibres (collagen, elastin), cell membranes, DNA, or creating inflammatory reactions8. Antioxidants are molecules that prevent free radicals from taking electrons and causing damage in a physiological and dynamic balance. Environmental stress breaks this balance. While some antioxidants can be synthesized by humans (linke ubiquinol), others can only be supplied through diet. So it is important to note that the use of oral or topical antioxidants does not replace a diet with vegetables and fruits consumption. Antioxidants such as Vitamin C from botanical sources have shown positive effects on skin quality.

Use antioxidants like Vitamin C

Vitamin C protects against free radical damage and helps maintain the elasticity and the integrity of the extracellular matrix. Moreover, it is an

anti-inflammatory agent that degrades and eliminates histamine and stimulates the immune system9. A study from 2017 showed that Licochalcone A suppresses the oxidation of cells10. Furthermore, it reduces redness and soothes the skin. Resveratrol, a polyphenolic phytoalexin present in large amounts in red grapes, is also used as an antioxidant in cosmetic products. Additionally, it has antiproliferative, anti-inflammatory and antimicrobial properties¹¹. Niacinamide, an old favourite in the cosmetic industry, is also an excellent antioxidant. It helps to repair UV-induced skin cell damage and rebalances skin tone as it prevents pigment on surface the skin¹².

Niacinamide for strengthen skin

Niacinamide is also used for strengthening skin barrier function. It can increase the amount of ceramides, collagen, filaggrin and involucrin. Another agent for strength skin barrier function is ectoin. It reduces transepidermal water loss significantly, functions as a superior moisturizer with long-term efficacy, protects against UV-A radiation, reduces redness and strengthens the epidermal immune system¹³. Squalene is a natural lubricant and skin barrier lipid that helps protect the skin and prevent moisture loss. It can improve skin tone and texture and prevent dryness. Due to its hydration and skin-softening effects, it helps reduce the appearance of wrinkles and fine lines14.

Moisturizer optimisation differentiation

Moisturizers can maintain and renew certain physiological parameters. Alpha hydroxyl acids (AHA), in particular glycolic acid, increase stratum corneum hydration and turgor significantly. They also help to optimize epidermal differentiation¹⁵. Polyhydroxy acids (PHA) like lactobionic acid are trending in skin care right now. They have similar effects to AHAs but fewer side effects. Like AHAs, PHAs exfoliate dead skin cells on the surface and rehydrate the stratum corneum. PHAs are rich in antioxidants and stimulate epidermal growth and repair¹⁶.

Another trend in cosmetics are probiotics. Lactobacillus rhamnosus increase water storage capacity in skin and reduces transepidermal water loss. In addition, it reduces hyperpigmentation and has antioxidative properties¹⁷.

Protecting against environmental influences

Protecting the skin against environmental influences is the key to slowing the signs of ageing and must be at the base of a daily cosmetic treatment. This means more than only protecting the skin from UV-radiation. The majority of sunscreen products protect against UV-B and UV-A radiation, but infrared-A radiation is not blocked by SPF. Just like pollution, Infrared-A creates reactive oxygen species which can be scavenged and neutralised by antioxidants.

Protecting the skin against premature ageing requires a healthy diet, a healthy lifestyle, effective and adequate cosmetics with active agents and an effective protection against environmental stress. We cannot keep our skin forever young but we can slow the ageing process with chosen cosmetic products.

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Fact: Collagen is good for the skin. Myth: Collagen is absorbed in the skin by oral ingestion.

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Researchers suggested, "An impact on the extra cellular matrix (ECM) remodeling process, of removing

malformed collagen and initiating Collagen-1 secretion") ADSSC, ISR, 2018).

Fact: Hydration is critical for a healthy, vital skin.

Myth: Hyaluronic Acid hydrates.

Polevan outscored HA in Hydration, in three different, independent, comparative clinical studies, held in Israel & France, 2014-2017.

Researchers suggested, "Polevan 0.5% demonstrates significant enhanced moisturizing properties compared to hyaluronic acid 0.2%, either immediately after a single application, or after repeated daily applications" (Greentech, FR, 2014).

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ULTIMATE PROTECTION

Interview | Valentina Mastria from Res Pharma Industriale in Italy talks about a cosmos botanical active ingredient, which promise to be a truly comprehensive global ally against ageing.



Valentina Mastria, technical marketing specialist, Res Pharma Industriale, Trezzo Sull'Adda, Italy, www.respharmaind.com

COSSMA: What is your botanical based on and what makes it so special?

Valentina Mastria: Pantrofina Skin 360 is a Cosmos botanical active ingredient derived from Pinus Pinaster bark extract solubilized in diglycerin. The marine pine survives, and thrives, in extreme environmental conditions; it flourishes in places too sunny, too windy, or too dry for other plants to grow.

In order to survive in this harsh environment, the pine has developed defence mechanisms against environmental and other external aggressors. A single ingredient offering





complete anti-aging action for the skin, Pantrofina Skin 360 offers ultimate protection against air pollutants. Thanks to its anti-oxidant power and soothing properties, it preserves the skin's youth.

What are its benefits?

Pantrofina Skin 360 improves the synthesis of collagen type I and aids in the recovery process of fibroblasts exposed to oxidative stress. It also plays an active role in the stimulation of energetic metabolism. Pantrofina Skin 360 is good anti-pollution agent; it acts both as a strong antioxidant and as an effective soothing agent. It has been proven to visibly reduce acne and micro-wrinkles.

How have these benefits been proven?

Pantrofina Skin 360 has been tested both in vitro and in vivo. In vitro tests demonstrate that Pantrofina Skin 360 avoids the complete consumption of the cell's ATP reserves, even when exposed to a source of oxidative stress such as UVA radiation.

The ingredient shows a greater free radical scavenging activity when compared to Vitamin C (present for example in oranges and citrus fruits) and solubilized Vitamin E acetate (found in olive oil and almonds). It neutralizes free radicals from indoor and outdoor dust with a statistically significant positive action against oxidative damage. Pantrofina Skin 360

has been demonstrated to have a strong soothing action even in comparison to alpha-Bisabolol. In vitro, it significantly inhibits pro-inflammatory cytokines IL6 & IL8 release in conditions of stress and IL8 release in fibroblasts pre-exposed to UVB. In vivo, clinical and instrumental parameters collected have shown an anti-acne and anti-wrinkle effect.

What do you believe is the essence of clean beauty?

Clean beauty is a very wide and diverse concept; with this term, different micro-trends of contemporary cosmetics converge. It confirms consumers' attention and choice towards natural, "clean", simple formulations that avoid the use of what are considered "unhealthy" ingredients.

I believe it can be described with three words: simplicity, transparency and sustainability. Clean beauty is a synonym for simplicity - formulations which contain few essential but effective ingredients are a concrete example of clean beauty. Transparency of the product's texture, formulation, product and routine communication.

Sustainability in the raw materials, in the process behind production of ingredients and the formulation itself. Sometimes, this also means formulating without water or in a water-saving approach.

In what way is this botanical compatible with clean beauty values?

Pantrofina Skin 360 is a botanical active ingredient; plant-based, it is easily identified by consumers as natural. Because it has demonstrated multifunctional properties, this single ingredient supports more than one claim at the same time, greatly simplifying formulations. Its affinity with water also makes it a key active ingredient for the development of concentrates, ampoules, serums and essences with a transparent appearance. Its botanical origin and Cosmos certification make it perfect for brands that make clean beauty their manifesto.

POSTBIOTICS ANTI-AGEING CARE

Ingredients | Recently, the use of living probiotics—tyndallized bacteria and lysates—and prebiotics has been blooming. However, the production of stable, reproducible and safe formulations containing most of these ingredients remains a topic of discussion. Big effort is currently devoted in elucidating the interactions between beneficial microbes and skin.



AUTHO

Author: Dr Guglielmo Bifulco, scientific marketing manager, others: Francesco Rastrelli, Giabattista Rastrelli and Giorgio Tosti, Kalichem srl, Rezzato, Italy, www.kalichem.it

he skin is an ecosystem where about a thousand microbe species live in symbiosis with each other and with the host. The balanced pattern of commensal and symbiotic microorganisms forms the skin microbiota, essential for skin health^{1,2}. Many of these microbial communities are harmless and some even provide functions not evolved by the human genome. Symbiotic microbes support skin barrier function and modulate immune response protecting the skin against pathogens, allergens etc. Since the skin is a finely organized ecosystem, a perfect balance between host and microbe communities exists to preserve homeostasis and wellness.

Disruption of this delicate balance can induce perturbations in skin barrier function, onset of dermatological disorders associated with photoageing, acne, eczema, psoriasis, dermatitis etc3. Moreover, significant change in the composition and distribution of skin microbe communities occurs during ageing, thus affecting balance between host and microbiota4. Solutions aimed at preserving balance of the skin's ecosystem have become one of cosmetic industry priorities.

An elegant way to provide the skin with microbial actives

Studies show that the culture medium of these bacteria, like Lactobacilli, promotes antipathogenic and wound healing effects in the host⁵. Molecules produced by bacteria and released in the medium can exert these effects. It has been postulated that bacteria interact with one another and the skin cells, using a complex network of molecules, the "postbiotics", which represent a new class of bacteria derived factors, helpful in keeping the skin microbiota balance, reinforcing skin defences, promoting barrier function and other beneficial effects⁶. Due to their reproducible composition, organoleptic features, long shelf life, safety, handling and efficacy, using postbiotics is an elegant and efficient approach to provide the skin with microbial actives. Through a patented biofermentation process (PB Tech by Postbiotica srl) Kalibiome postbiotics for cosmetic applications were designed and produced starting from L. Paracasei, species known for its beneficial skin effects^{7,8}. Kalibiome postbiotics are naturally produced and released by living microbes and extracted by a technique which avoids bacterial fragments or the presence of toxins. By modulating biofermentation conditions, it is possible to obtain different molecular patterns for postbiotics. This means that their production is customisable to obtain different target molecules.

Materials and methods

In vivo tests were performed using Kalibiome in emulsion at 0.2% vs

placebo twice daily, on twenty women aged between 40 and 70, to assess skin echogenicity (measurement of the ratio between upper-lower dermis ultrasonography, digital images of skin density by Ultrasound Dermascan C), wrinkle depth (Ra and Rz ratio, image obtained by high performance CCD camera COHU), elasticity (Cutometer MPA580 Khazaka), TEWL, hydration (Corneometer CM 825), skin redness (measurement of a* from CIE L*a*b*, after 24h SLS treatment).

In vitro tests on hyaluronic acid and pro-collagen I expression were carried out by Elisa, comparing postbiotics vs benchmarks. A scratch test was performed using EGF as control with analytic and photographic assessment of wounded fibroblast layer repair. The skin barrier was analysed by immunofluorescence microscopy. The pathogen biofilm formation was assessed analysing the postbiotics in-

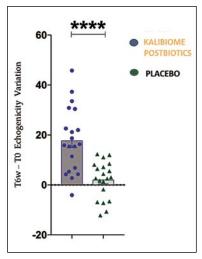


figure 1: Echogenicity change after 6 weeks.

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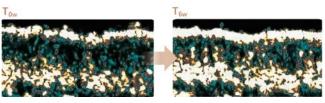


figure 2: Skin framework digital image treated with postbiotics (white bands are indicator of redensified areas).

terference with S. aureus biofilm onset vs control. The postbiotic solution was added in microchannels by syringe pump and the biofilm formation was observed through glass surface and recorded by microscope and live imaging incubator.

The antioxidant activity was tested on cells after ROS induction with the genotoxic mitomycin C. Cells were treated with GSH (glutathione) and postbiotics to compare the antioxidant force. Superoxide levels were measured as an oxidation index of a red fluorogenic reagent by mitochondrial superoxide of living cells.

Anti-inflammatory effect was evaluated by ELISA of proinflammatory cytokine expression (IL6, IL8, CCL MCP1) inducing inflammation on keratinocytes by poly I:C.

Atopic dermatitis soothing effect on TSLP itching isoform expression in keratinocytes was evaluated by RT-PCR in presence of poly I:C. The postbiotics were subject to skin irritation potential, occlusive patch test, ocular irritation, and phototoxicity tests. Sensitization or irritation potential were not found in any of those (data not shown).

In vivo-evaluation of photoaging

The postbiotics gave significant results in redensifying the dermis framework in skin echogenicity tests. Echogenicity is the ratio between the upper and lower dermis as tested by high frequency ultrasonography, used to estimate the protection against photoageing 9 . The postbiotics treatment at 0.2% showed an increase of +15.7% compared to the placebo (Fig.1) and a significantly visible dermis redensifying action, seen in the digital imaging with larger white bands highlighting collagen expression increase (Fig. 2).

In vivo: anti wrinkle tests

The postbiotics at 0.2% were tested in crow's feet area to investigate effectiveness on wrinkle depth reduction. The treatment results show -13,1% wrinkle depth decrease compared

T=0 / T=6 weeks challenge in 2 random subjects treated with Kalibiome postbiotics

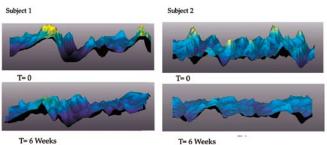


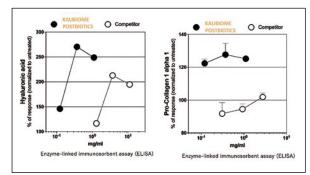
figure 3: Wrinkle depth reduction and surface regularization after 6 week treatment.







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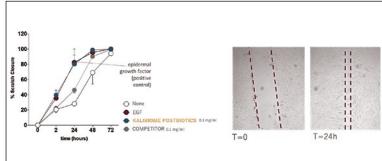
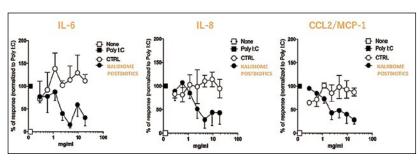


figure 4: Postbiotics vs competitor.

figure 5: Kalibiome repairing effect on wounded fibroblasts.



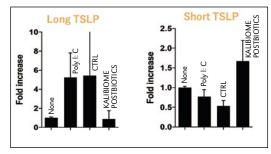


figure 6: Postbiotics cytokines and chemokine (IL8) modulation.>>

figure 7: modulation of TSLP isoforms.

to the placebo, along with surface regularisation as shown in Fig. 3.

Effects on hyaluronic acid, procollagen I and fibroblast

The postbiotics antiageing action is ascribable to the dualistic effect observed on skin targets like the epidermal keratinocytes hyaluronic acid involved in skin hydration, cells turnover, wound repair, and the procollagen I involved in restoring the dermis framework (Fig.4). In both cases, the postbiotics outperformed the benchmark.

They show the same efficiency as EGF (Fig.5) in promoting fibroblasts migration after wounding, with results visible after 24 h.

In vitro: immune system modulation

The postbiotics proved modulatory activity on pro-inflammatory cy-

Control KALIBIOME POSTBIOTICS

figure 8: immunofluorescence microscopy images (ZO-1 green, keratinocytes blue).

tokines (Fig.6) IL-6 and CCL-2 MCP-1 through a dose dependent expression reduction¹⁰. The same pattern was observed with the proinflammatory chemokine IL-8, whose expression was reduced vs control. The above mechanisms explain the decrease in skin redness and photoageing effects detected in vivo. The immunomodulation activity pattern¹¹ confirms their suitability in sensitive skin products.

Further tests have proven the reduction of long TSLP (thymic stromal lymphoietin) isoform, a cytokine typically occurring in atopic dermatitis and mouth inflammations¹², and increased expression of IL-10^{10,13}. The short TSLP boasts ecosystem balancing activity on skin microbiota¹⁴. The postbiotics TSLP regulation (Fig.7) leads to long TSLP isoform decrease and homeostatic short isoform increase.

In vitro: skin barrier restoring

The postbiotics increase the expression of the tight junction zonula occludens-1 (ZO-1), a key component involved in keratinocytes adhesion15,16,17 analysed by immunofluorescence microscopy. The keratinocytes were treated with SLS and

then with postbiotics vs control. Results show the postbiotics' superior effects on keratinocytes tightening and sealing, promoting decreased permeability to pathogens and pollutants (Fig. 8).

In vitro: interference with biofilm formation

The postbiotics inhibit the formation of S.Aureus biofilm, (Fig. 9) involved in inflammation diseases such as atopic dermatitis. Their biosurfactants promote physical disruption of the pathogen biofilm, confirming the results of recent studies18,19 and their suitability for applications where bacterial biofilm presence is matter of concern.

In vitro: antioxidant action

Additional tests analysed the mithocondrial ROS (O_2 · superoxide) in living cells (Fig. 10). The postbiotics reduced the superoxide radical found in the cells subject to oxidation more efficiently than GSH (glutathione). The decrease in oxidative stress contributes to the immune system modulation, as it downregulates the activation of pathways involved in the induction of lipid peroxidation, membrane disruption, and protein dena-

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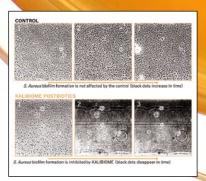


figure 9: S.Aureus biofilm evolution, control vs postbiotics.

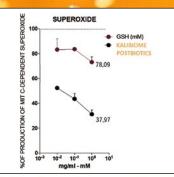


figure 10: Postbiotics vs Glutathione (GSH) superoxide reduction.

turation that lead to nucleic acid damage, mithocondrial damage and oxidative explosion. These inflammation cascades are triggered at different physiological levels, as recent studies show20 and their negative modulation seems a promising strategy for soothing mucosal targets.

In vivo: redness, elasticity enhancement, skin hydration, TEWL

The postbiotics were tested at 0.2% on different parameters vs a placebo formulation, showing in each case significant benefits (Tab.1). The decrease in skin redness may be linked to an immune system response to pollutants and cytokine modulation control, as previously shown. The elasticity increase is likely related to the proven dermis redensifying action. The restoration of the skin barrer function and the hydration effect reported are linkable to the activity on tight junctions and hyaluronic acid production.

Kalibiome, an innovation in the field of microbiota care

Kalibiome postbiotics are biotech actives developed by a patented fermentation technique which creates,

with standardized reproducibility, bacterial active metabolites with proven safety. The patented fermentation process allows the postbiotics to be customised for personal care use. The combined immune system modulation and the anti-ageing features position Kalibiome postbiotics as one of the deepest innovations in the field of microbiota care.

Currently, Kalibiome is recommended for applications in anti-ageing and soothing the skin. Kalibiome postbiotics increase skin compactness, redesify the dermis, reduce wrinkle depth, inrease elasticity, likely ascribable to the stimulatory action on dermal-epidermal framework components (ZO-1 tight junction, hyaluronic acid and procollagen I). As for the soothing effect, the postbiotics displayed an anti-inflammatory action through cytokine release modulation, itching reduction in atopic dermatitis and sensitive skin through TSLP modulation, inhibitory activity on pathogen bacteria biofilm formation and antioxidant effect on stressed cells.

These mechanisms open a new frontier for soothing and antipollution treatments for skin care, medical de-

PARAMETERS ANALYZED	KALIBIOME POSTBIOTICS (in vivo results)
SKIN HYDRATION	+12.9 % compared to placebo in 6 weeks
TEWL	- 11.7 % compared to placebo in 48 hours
SKIN ELASTICITY	+10.0 % compared to placebo after 6 weeks
SKIN REDNESS	-18.3 % mean variation of a* after 3 days

table 1: in vivo tests.

vice applications (oral care, gynecological etc.), and skin disorders support treatments. Further studies are in progress with the goal of extending the applications of this biotech solu-

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AYURVEDIC HAIR SECRETS

Ingredients | Provital combined an ancient ayurvedic well-ageing secret and advanced botanical research in its latest innovation. Amla is a natural adaptogen fruit and is known for its wellness and well-ageing benefits for scalp & hair.



AUTHOR: Hagen Döring, Area Sales Manager, Provital Group, Lünne, Germany

his new active prevents hair follicles from miniaturisation and thus improves parameters of hair quality such as resistance, shine, hair thickness and colour. Amla is the Hindi word for a fruit tree (Emblica officinalis or Phyllanthus emblica) that grows throughout India and bears sour-tasting gooseber-

ry-like fruits. Amla has been used in Ayurveda and other Asian medicinal practices for thousands of years. It is a highly revered rasayana fruit, which means it has strengthening and rejuvenating effects. With incredible healing properties, this wonderful berry has played a key role in the long, thick, beautiful hair of India



women. It contains an array of antioxidants such as emblicanin, phyllantine, quercetin, gallic acid, and ellagic acid. It also contains a high concentration of minerals and amino acids, and has strong immunity boosting properties. Studies have shown that an active ingredient derived from Amla fruits is able to prevent follicle miniaturisation, which is the main cause for hair ageing.

Hair follicle ageing can be prevented

As we age, hair follicles miniaturize, leading to the visible effects of hair ageing; the hair gets thinner, loses volume, breaks more easily and grows more slowly. Recent studies1 show that hair follicle ageing is driven by transepidermal elimination

of stem cells via Collagen XVII (COL17A1) proteolysis. The hair follicle is a mini-organ that sustains cyclic hair regrowth. A pool of hair follicle stem cells (HFSCs) is responsible for the new hair shaft production in each cycle.

As all other organs, the hair follicle is susceptible to ageing caused by genomic instability as a result of accumulated DNA damage. It has recently been shown that the DNA damage response induces the proteolysis of the type XVII Collagen (COL17A1) by neutrophil elastase in HFSCs. In each new hair growth cycle, these aged COL17A1 depleted stem cells leave their niche in the hair follicle, terminally differentiate into epidermal keratinocytes, and are then eliminated from the skin surface. As a result, the hair follicle suffers miniaturisation, which leads to hair thinning and the reduction in the number of hairs which subsequently leads to senescent baldness. Hair follicle ageing, however, can be prevented by maintening COL17A1 in HFSCs 1. The natural active ingredient derived from Amla fruits, is able to prevent follicle miniaturisation by increasing expression of Collagen XVII (COL17A1) while reducing its proteolysis.

Growth of hair along the experiment

Provital performed in vitro assays to evaluate the anti-ageing effects of Kerascalp[™], by analysing the activity

of genes and proteins involved in the miniaturisation process. Results show that the active can increase the expression of COL17A1 that maintains the pool of hair follicle stem cells and decreases the activity of proteases to protect the stem cells from ageing.

Hair follicles cultivated ex vivo presented a steady growth of hair along the experiment in all treatments. Importantly, hair length increases faster when bulbs are treated with the Amla based active at the concentrations of 0.25% and 0.32% compared to the control across the seven-day culture period (Figure 1). On day 7 the hair length is significantly increased by 22% at both concentrations.

Active increases in the number and thickness of hair

An in vivo study was conducted to assess the effects of Kerascalp™ on several scalp and hair ageing signs, such as gloss, resistance, number and density of hair follicles and ratio of follicles in different phases of growth. Sixty volunteers (thirty women and thirty men) from 40 to 60 years old, with thin and weak hair participated in this study.

Hair number and density was analysed by TrichoScan HD system with a digital image recording and a software based analysis, which can assess all the major parameters of hair growth such as hair follicle density and terminal hair density. The thrichometer analysis shows that the

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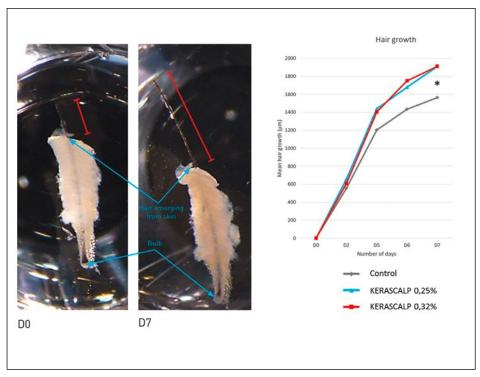


Figure 1: Evolution of hair growth over a seven-day period in follicle cultures grown ex vivo in the presence or absence (control).

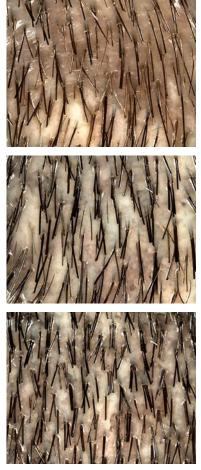


Figure 2: TrichoScan evolution images of application area.

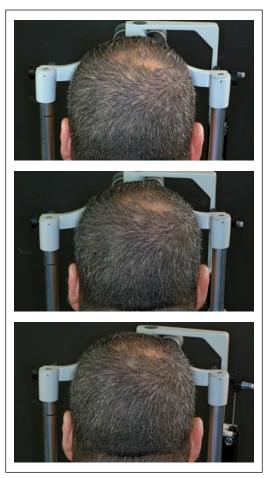


Figure 3: Standard images of application area.

active increases the number and thickness of hair. It also shows visible improvements in the texture of the scalp, minimising the presence of dry flakes.

Hair strength was evaluated by a Pull Test. The results show that, when the volunteers were treated with the active, the percentage of change in hair pulled was decreased by 12.2%, and 52.3%, after 84 and 150 days of application, respectively.

An overall improvement in hair density

To analyse the evolution of hair thickness, an artificial intelligence algorithm, was used to automatically identify the hair fibres in the trichoscan pictures. Hairs were categorized as thin or thick. The number of hairs in each category was quantified in each volunteer throughout the course of the study.

The results show that both the number of thin and thick hairs was increased significantly in volunteers treated with Kerascalp™ compared to the number of hairs quantified in the placebo-treated volunteers. The increase in thick hairs was also much higher than that for thin hairs, providing more volume to the hair. The active increased the number of thick hairs by 56% at 150 days. Standardized photographic images obtained with parallel polarised light were obtained during the study with a Canon DSLR camera with a circular polariser for all the volunteers.

In both women and men, the images show an overall improvement in hair density and quality throughout the study. The results of the study show that Kerascalp™, an active ingredient based on the rasayana (rejuvenator) fruit amla, prevents hair follicle miniaturisation, encourages hair growth and visibly improves the quality of hair. □

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INTERNATIONAL LAUNCHES

Product development | This month Mintel is looking at multi-functional products. In search of convenience, informed consumers are scaling back their BPC regimes and are switching to products that offer effective results.

> n Germany almost half (45%) of consumers have used 2-in-1 shampoo in the last year. Meanwhile, a third of French consumers have reduced the number of products in their facial skincare routine and almost six in ten Spanish males like to use multipurpose products. Research reveals that young men in particular show a particularly strong preference for all-in-one solutions and they are more likely than those older than them to experiment with new brands. From eye shadow with UV protection to glow powder with fragrance, here Mintel GNPD highlights some of the latest multifunctional products.

Without animal testing

Venn is known as a clean, convenient and perfect skincare brand born in Silicon Valley with 20 years of research and development. All products have not been tested on animals, are free from 20 harmful ingredients, and give no burden to body. Available as part of the brand, Moisture-Balance All-In-One Face Cleanser is designed to gently cleanse and lift impurities, moisturises instantly, removes makeup, and exfoliates skin mildly in one simple step. This pH neutral, multi-tasking, non-foaming facial cleanser is formulated with vitamins B3 and B5, antioxidants such as centella asiatica leaf extract, ellagic acid, and camellia sinensis catechins. Dermatologically tested, it also contains PHA, xylitol and fruit enzymes to mildly exfoliate skin daily. It is said to be a quasi-semi-emulsion type made by water and oil based ingredients and humectants with particle sizes smaller than emulsion to offer deep cleansing in pores and wrinkles and effectively remove makeup and oil without stripping the skin. It is free from fragrance, parabens, silicone, phthalates, mineral oil, sulphates, and colourants, and surfactants.

One for all Shampoo

Sergio Paris Shampoo Cerveja 4x1 is described as a caring product for hair and skin that can be used as a shampoo, conditioner, shaving foam or as a liquid body soap. The formula contains barley and hops, said to purify, condition and control oil, adding softness, hydration and leaving a woody scent. The multi-functional formula is also claimed to clean, provide a soften shave, increase hair thickness, reduce frizz and nourish in just one product.

Ready for shiny summer days

Launched for Summer 2019, Clarins Water Lip Stain is now available in the new irresistible sparkling shades: 06 Red Water; 05 Rose Water; and 07

VFNN

All-In-One Face Cleanser is low pH, gently cleanses, lifts impurities and removes make up



Violet Water. Its unique water like texture glides over the lips to give long wearing, non-transferable colour, while providing intense hydration and nourishment to the lips, with a matte finish. It has been formulated with organic aloe vera to hydrate and organic raspberry water to soften. It is also developed with unique Anti-Pollution Complex, to protect lips from environmental aggressors, and features a brush infused with just the right amount of colour, perfectly fitting the shape of the lips, for an adaptable and comfortable application. Suitable for all skin types.

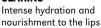


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SERGIO PARIS The product retails



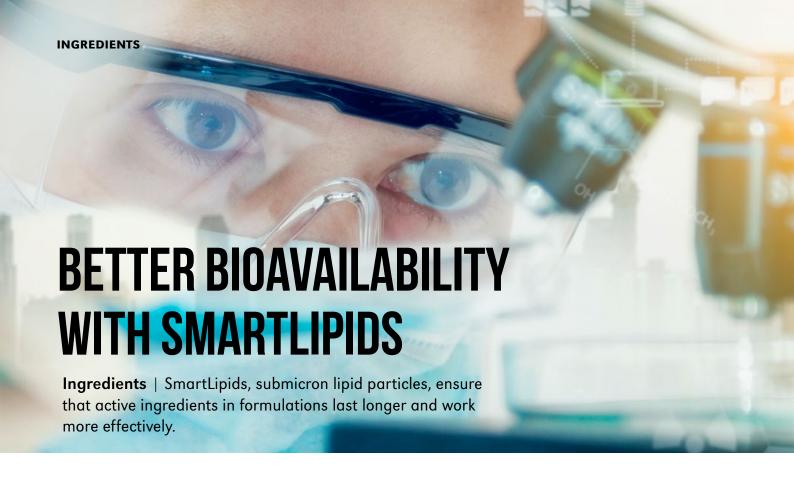
CLARINS













AUTHORS

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onsumers are demanding more and more from topical applications. The products are expected to deliver quick results – whether in anti-ageing, skin lightening or skin refining – without compromising on skin compatibility and sensory attributes.

While the choice of potent actives on the cosmetics market seems to be endless, there are often challenges to the formulator when using these ingredients. In many cases, active ingredients cannot be simply mixed into a cosmetic formulation and be expected to have the same activity in vivo as they have in vitro. The substance must penetrate the skin efficiently in a meaningful and effective concentration; it has to be bioavaila-

ble. In many cases, this is difficult due to the active's poor solubility or sensitivity to chemical degradation. Active ingredients often need a delivery system to enhance their penetration or control their release into the skin.

Introduction to lipid based delivery systems

In a conventional emulsion such as a cream, chemically unstable lipophilic active ingredients are prone to degradation because they are able to move around between the oil and water phases through diffusion.

SLN (solid lipid nanoparticles) are carrier systems based on solid lipids. They resemble a classic emulsion, in which the liquid oil droplets of the dispersed phase are replaced by solid lipids (with a melting point higher than skin temperature and a particle size below 1 micron) that remain solid after application to the skin.

NLC (nanostructured lipid carriers) are the second generation of this type of carrier. [1] In contrast to SLN, they typically consist of a mixture of one liquid and one solid lipid, in which the active ingredient is embedded and protected. Nevertheless, the loading capacity can be limiting and they have a tendency to form (par-

tially) ordered structures over time, which may cause the active ingredient to be released too early.

SmartLipids (submicron lipid particles), obtained by a patented technology, are the latest version of SLN and NLC.^[2] They consist of many more different solid and liquid lipids which are screened, selected and adjusted according to the particular active ingredient to be encapsulated. Because of the more complex lipid structure, the lipids arrange themselves chaotically which leads to a higher loading capacity and a lower tendency to form ordered structures, thus resulting in better stabilisation of the sensitive ingredients.

A closer look into a SmartLipid

Figure 1 (page 28) shows the general structure of a SmartLipid. Different lipids, consisting of solid (green) and liquid lipids (blue), form a chaotically structured matrix. Active ingredients that are lipid-soluble can be embedded in the resulting gaps, and are effectively prevented from escaping into the surrounding water phase. Sensitive ingredients are firmly enclosed and therefore physically protected against oxygen, light, and other external influences that could lead to their degradation. The size of

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the SmartLipids particles is between 0.1–1.0 µm, which makes them sub-micrometer particles. Their presence and stability can easily be proved by X-ray analysis^[3] and DSC (differential scanning calorimetry).^[4]

SmartLipids are typically available as a stabilised suspension in water, which means that they can easily be dosed and added to any o/w-emulsion or water-based formulation.

What happens when SmartLipids are applied to the skin? They form an invisible, uniform layer – similar to a second skin. Due to their small size $(0.1\text{-}1.0~\mu\text{m})$, their lipidic nature and their solid state even at skin temperature, SmartLipids adhere especially well to the skin, extending the release of the active substance, enhancing penetration through their occlusive effect, and helping to restore an imbalanced or damaged skin barrier by reducing TEWL (transepidermal water loss). [4,5] Figure 2 (page 28) illustrates the mode of action on the skin.

Whereas the encapsulated active is firmly enclosed while the SmartLipids are suspended in water or in a formulation, the situation on the skin is different: the active ingredient is now able to diffuse into the skin with the aid of the concentration gradient as a driving force. On reaching the relevant skin layers, the active can deploy its full biological effect and is metabolised at the same time. This in turn removes the active ingredient from the skin, maintaining the concentration gradient. In this way, each SmartLipids particle gradually "empties" its active depot.

SmartLipids and active ingredients

Anti-ageing: Coenzyme Q10 is a well-known molecule naturally occurring in the skin, but its level decreases with age. By encapsulation with SmartLipids technology, Q10 is stabilised against degradation and exhibits improved bioavailability and pen-

etration for effective anti-ageing results

Retinol is one of the most researched and effective anti-ageing actives, as it promotes the normalisation of the cell renewal process, reduces wrinkles, and improves the elasticity of the skin. However, its instability against oxygen, light, heavy metals and acidic conditions makes working with this active a real challenge. Furthermore, retinol can cause strong irritation and reddening of the skin. When retinol is encapsulated in SmartLipids it is effectively protected against degradation; its penetration into the skin is enhanced while ensuring extended gradual release which reduce possible irritations and side effects. The carrier itself can strengthen the skin barrier by forming an invisible film on the skin.

Whitening: Glabridin is a powerful lightening agent obtained from the liquorice root. Its poor solubility, resulting in poor bioavailability, and its

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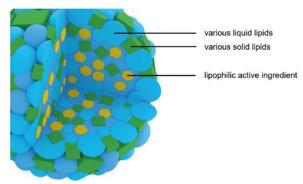


fig 1: Structure of a BergaCare SmartLipid

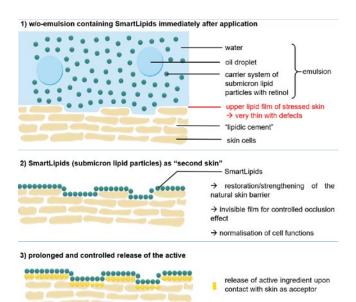


fig 2: SmartLipids on the skin



fig 3: Reduction of pigmentation after 12 weeks of daily use of a serum with 0.05% glabridin encapsulated in SmartLipids



fig 4: Evidence of the improved whitening efficacy of lemongrass oil encapsulated in SmartLipids vs. "free" lemongrass oil. A: cream containing 0.23% "free" lemongrass oil; B: cream containing 0.23% lemongrass oil encapsulated in SmartLipids. A and B refer to the same test person.

tremendous price make SmartLipids the ideal technology for meeting these challenges. Tapestrip experiments show better and deeper penetration of glabridin from SmartLipids than from a pure glabridin powder (95% purity) suspension in water. Furthermore, in vivo experiments demonstrate impressive results for lightening dark spots after 12 weeks of use (fig. 3).

Lemongrass oil is a natural essential oil with mild whitening properties. Incorporation into SmartLipids enhances this effect by increasing bioavailability and supporting the skin barrier (fig 4).

Ceramides are naturally occurring components of the skin's own barrier. Together with sterols and a multitude of different fatty acids, they are an indispensable part of the stratum corneum, protecting the skin against attacks from outside while keeping moisture inside. An encapsulated SmartLipids version of these valuable natural components of the skin can therefore assist normalisation of a damaged skin barrier and strengthen the skin's ability to reduce TEWL by forming a "second skin". It may be especially helpful in cases of dry skin, skin with a weakened barrier or skin with a tendency towards atopic dermatitis and psoriasis.

Outlook into the future

The multiplicity of the lipids that can be chosen to encapsulate cosmetic actives permits tailor-made concepts. Even poorly soluble or highly sensitive ingredients can be encapsulated using SmartLipids technology to improve their stability, bioavailability, performance or handling.

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SKIN CLEANSING

Formulations | With the rise in awareness about pollution's effect on the skin, many consumers are more careful in choosing their skin cleansing products. Our selection of formulations from a broad range of ingredient suppliers reflects the latest formulation trends in this area. You can access the details of each formulation free of charge at www.cossma.com, webcode 100358.

The details of the formulations listed are available at www.cossma.com

Mild Jelly Shower Gel

Azelis

Happy Natural Day Shower Gel

BASF

Clean N' Gentle

Biesterfeld Spezialchemie

Face Cleansing -

Whipped Cream & Lemon Zest

Brenntag

Natural You Micelle Water for

Normal Skin

CLR

Gentle Cleansing Gum

Croda

Non Micellar Cleansing Water

DKSH

Shower Gel - "Unicorn"

Eckart Altana

Multi-Botanical Facial Cleansing Oil Floratech

Mild Cleansing Face-Foam, Uni-Age GfN Selco

Comforting Body Polisher Greentech

Saturday Night Remover

HallStar Beauty

Aromatic Cleansing Oil

Jeen

Detoxifying Wash-Off Mask

MMP Inc.

Green Tea Cleansing Bar

Nordmann, Rassmann

Cleansing Cloud

Provital

Nourishing Cleansing Butter

Roelmi HPCI

Let's Face It Exfoliating Pad

Safic Alcan

Foaming Cleansing Lotion

Sederma

Hamam Argan Oil-Gel

Sisterna

Cosmos Remover Balm

The Cosmetic Box

Soft Cream with AloeVera Beads

Worlée

Creamy Emulsion Cleansing System for Facial Cleanser

Zschimmer & Schwarz

In our April issue, we will be focussing on formulations for the fields of masks, treatments and exfoliants. In our May issue, we will be investigating the most creative product ideas in the field of natural cosmetics. All of the information published here has been carefully assembled. However, neither the publishers nor the developers of these formulations can accept responsibility for their safety or accuracy.



GOING WATER-FREE

Interview | Nowadays customers are looking for products with less or even no packaging and buying more sustainable face brands. For some, sustainable means formulations without water. Laura Ratz and Annika Kramer talk about the challenges and advantages of developing water-free cosmetics.





Laura Ratz, Application Scientist
Annika Kramer, Senior Application Scientist, Nordmann, Rassmann GmbH, Hamburg, Germany, www.nordmann.global.

COSSMA: What challenges come with making water-free formulations?

Laura Ratz, Annika Kramer: The first challenge in creating water-free formulations is that many of the raw materials used in the formulation of personal care products contain water, for example actives or surfactants. This means they cannot be used in water-free formulations and alternatives must be found for some of the

most popular ingredients used by formulators. Another of the big challenges is to create products that perform similarly to conventional products. Skin care products typically need to produce a nice skin feel both during and after use, while cleansing products are expected to foam a lot and leave skin feeling clean. With a high concentration of oils and butters, solid personal care products can feel too heavy and greasy on the skin.

The production process of water-free, solid products on a larger scale can also come with its own challenges. Solid shampoos or shower bars usually need to be poured into moulds at the right temperature, for instance, and this requires special manufacturing equipment.

Finally, water is quite inexpensive compared to other used raw materials. Water-free formulations usually are based on more expensive ingredients, which can be a challenge for photo: Radowitz/Shutterstock.co

formulators when it comes to creating a quality product with a lower price point.

Which ingredients are particularly well suited to solid formulations?

Essentially, the primary ingredients for making water-free formulations include butters, waxes and emollients like oils or esters. Butters with superior crystallisation profiles, like Lipex Shea or Lipex CocoaSoft, are very suitable because they offer great benefits for both skin and hair and can also add texture to water-free and solid formulations.

Using different combinations of waxes allows consistency to be built up, which is particularly important for solid and packaging-free formulations such as solid body bars.

Depending on the application type and skin feel desired, different emollients can be used.

Some vegetable oils such as argan oil are already well-known ingredients for conventional personal care products due to the great properties they offer, particularly for hair, and can be good choices for water-free products. There is also a broad selection of actives suitable, for example oil-based vegetable extracts.

For the formulation of cleansing products, surfactants supplied in powder form are a good option. Lathanol Lal Coarse is a sulfate-free surfactant, which provides a rich and creamy lather when used in both solid shampoos and soaps.

Bio-Terge AS-90 Coarse is a highly foaming and sulfate-free anionic surfactant.

Starches also make a great addition to water-free products. Nativacare rice, corn and tapioca starches, for example, give products a more pleasant skin feel both during and after use. They also prevent the formation of cracks in solid formulations and help avoid a heavy, greasy feel being left on the skin as a result of high oil and butter content.

How well do these formulations perform, especially when compared to conventional products? One important criterion for solid shampoos and shower bars is the quality and amount of foam they produce. Consumers usually want their rinse-off products to produce a decent amount of foam.

Fortunately, even when solid shampoos contain a high amount of oils and butters, it is still possible to get them to foam well by using surfactants like Sodium Lauryl Sulfoacetate or/and Sodium C14-16 Olefin Sulfonate. The use of foaming boosters can also be very helpful in boosting this type of performance. To create anhydrous deodorants that can perform competitively against conventional deodorant sticks and rollons, actives like Cavamax cyclodextrins are suitable for producing water-free formulations.

Lipex Smp, an emollient with a sharp melting profile, helps provide a nice, non-greasy and non-tacky skin feel. Water-free skin care products also offer great benefits. They contain high concentrations of butters and oils which nourish and condition the skin. They can be enriched with precious vitamins and extracts, tailored to the needs of every skin type.

Which approaches have you used that are particularly innovative?

While working on water-free formulations, we decided to target as many different applications as possible. Shampoo bars have become very popular in the past few years, as many consumers are deciding to replace their bottled shampoos with solid equivalents in an effort to produce less waste.

Inspired by this success, we decided to create several other solid cleansing formulations for different skin types to fit everybody's needs.

After we successfully formulated a deodorant stick, we also decided to create a packaging-free version of it to show what else you can do when you want by playing with the different ingredients. Our new package-free solid deodorant contains the same ingredients as the stick, but we changed the consistency to make it more practical to apply.





Emulsun®

The new low cost O/W emulsifier derived from sunflowers

- INCI: Hydrogenated Sunflower Seed Oil Polyglyceryl-3 Esters, Hydrogenated Sunflower Seed Oil Glyceryl Esters, Cetearyl Alcohol, Sodium Stearoyl Lactylate
- PEG- and preservative free
- HLB independent and non-ionic
- biodegradable and oxidatively stable
- easy to handle
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MARKETING

P.32-41





GENERATION Z IS COMING!

Trends in product development | In China, the economy is suffering from the ongoing trade tariff discussions with the U.S. According to the National Bureau of Statistics, China's GDP increase was 6,5% in the third quarter of 2019, the weakest quarterly economic increase since 2009, the year of the world financial crisis. Read here, what generation Z has to do with it.



AUTHOR:
Mei Gräfe, managing director,
Intergate Consulting, Munich, Germany

anufacturing and exports are first victims of this development. Experts in China and abroad are expecting more economic challenges in China such as high debts level and the negative consequences of the trade battle between China and the U.S. At the same time

the China National Bureau of Statistics also released information which paints a more positive picture; the total retail volume of the first half year of 2019 increased 8.4% compared to 2018. The increase of June was even 9.8% compared to June 2018. The retail volume of cosmetics

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in the first half year of 2019 reached 146.2 Billion Yuan (18.7 Billion Euro), an increase of 13.2% over 2018. Retail of cosmetics in June increased a whopping 22.5% compare to June 2018.

What are the reasons for the extra ordinary growth in cosmetics sales?

According our observation, there are following major trends, which support the remarkable sales increase despite the general slow economy:

Generation Z has become an important consumer segment

The total population of this consumer group, born between 1995 and 2009 in China, is 260 million. The "00s", the population born after 2000, is developing to an especially interesting target group for high-quality skin care products. Nowadays, it's not unusual for elementary school kids in China to already begin using face masks. According to a survey done by the cosmetic industrial magazine Cosmetic Observer 80% of the 14 – 16 year old high school students interviewed have already used cosmetics and skin care products.

In 2016 the online shopping platform Tmall revealed the items of the first online purchase of the teenagers. The results were astonishing: cosmetic products including skin care products, make up, beauty tools and perfume make up 34,8% of the total first purchase of the boys; for girls the percentage reaches 68,1%! The current figures should be even higher. The reason for this development is partly because the much improved standard of living of their parents, who belong to the 70ties and 80ties generations.

These generations have a much better material life due to the strong economic development since the mid 80s. Also, today's teenagers were born into the digital age and are very

well informed about lifestyle products thank all kinds of social media platforms and tools.

Improved standard of living of their parents

As a result, these teens are very much aware of the needs of their skin and are ready to pay higher prices for good products, which are recommended by their friends or influencers they like. According to Kantar Consumer Panels, more than 80% of the teenagers between 14 and 16 years old spend 1000 Yuan (around 128 Euro) each year for cosmetics, more than 40% of them spend 4000 Yuan (around 511 Euro), while 14% of the kids are even laying out more than 10.000 Yuan (around 1278 Euro) yearly for cosmetics.

Besides international brands, they are very open to domestic brands, which usually have more elements related to Chinese culture than imported products. Products with clear features like moisturising or anti-blemish are among the favourites for young people. But functionality alone is definitely not enough to win over this consumer group. Product philosophy and product packaging are also essential. For example, the make up brand Perfect Diary, founded in 2016, has the slogan is "unlimited beauty". The brand concept suggests that the younger generation should not be bound by external labels, but strive to break through limitations. This concept expresses the dreams of young people in China, to be more independent and to have the freedom

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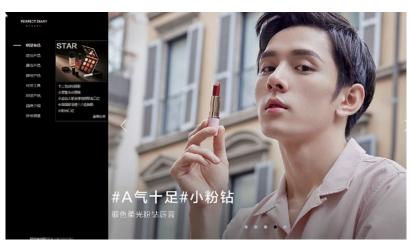
Since its start in 2016, the company has experienced breathtaking business expansion due to tits skilled online promotion strategy and cooperation with influencers like Li Jiaqi. At the 2018 double eleven sales festival on Tmall, Perfect Diary reached sales of 100 million Yuan (around 12 Mio Euro) within only 90 minutes and has since stayed on Tmall's top selling list for make up. Perfect Dairy is a good example of benefiting from younger customers through correct product positioning, placement and promotion.

Social media channels and influencers as new sales boosters

Although many international social media platforms are not accessible in China, the country does have its own lively social media scene. The most import social media tool is WeChat, which was initially an instant messenger tool similar as What'sApp. In recent years, however, WeChat is be-



Men are becoming more important as consumers and promoters of cosmetic products in China.



The famous influencer "Lipstick Brother " LI Jiaqi poses for cosmetic products.

"IN ORDER TO ATTRACT YOUNGER CONSUMERS, CO-OPERATION WITH INFLUENCERS ARE INDISPENSABLE FOR COSMETIC BRANDS IN CHINA."

Mei Gräfe, managing director, Intergate Consulting

coming a "Super App" with various functions like shopping, payment, dating etc. Together with Alipay, it contributes to the current trend toward a cashless society in China. Thanks to its feature of a daily newsletter and countless plug in possibilities, companies and brands are using WeChat as a platform to issue product news. Direct communication with the consumer on a daily base is ensured. According to the experience of the author, the newsletter function of WeChat is very convenient and companies can reach millions of potential consumers through a well-managed WeChat company account.

At the same time, thanks to the popularity of short video program Apps such as TikTok, Kuaishou, and HuoShan, the power of influencers (in China they are called KOLs: Key Opinion Leaders) is becoming stronger and stronger. One of the most successful influencer is the "Lipstick brother" LI Jiaqi, a former sales consultant of L'Oréal in a second tier region of Southern China. With his 50 million followers on TikTok, Kuaishou and Little Red Book, he is one of the most valuable influ-

encers for cosmetic products. Through his live show he achieved daily sales of 150.000 lipsticks at the 618 (18.June) shopping event in June 2019. He also challenged the Disney record of testing 380 lipsticks within one live show. His most successful sales record was selling 14,000 lipsticks within a one minute show on TikTok. Certainly, not all of the influencers are as successful. Li has inspired many young people becoming cosmetic bloggers and vloggers.

In order to attract younger consumers, cooperation with influencers are indispensable for cosmetic brands in China. The costs for one live show with influencers range from 120,000 Yuan (around 15,334 Euro) in the case of newcomers and 950,000 Yuan (about 121,393 Euro) in case of Li Jiaqi. Influencers are among the most important driving forces behind the strong development of Cina's cosmetic market.

Crossover and co-branding trends on the cosmetic market

When unrelated lifestyle brands or shops offer cosmetic products in their assortments on a permanent or tem-



Perfumes are been offered besides ball pens, head sets and fancy mobile phone covers.



Colour "China red" was sold out quickly after the product launch end of 2018. The packaging of the lipstick was made via 3D printing technology.

poral base, this is considered a crossover trend. For example, the lifestyle shop NÖME in Beijing mainly offers Scandinavian style household articles, but they also have a full assortment of cosmetic products from make-up, skin care products to perfume. This trend began a few years ago and now thrives with other lifestyle shops and boutiques. Just imagine IKEA offering cosmetic products under their own brand! Co-branding is also very popular right now. Two brands from different areas launch a special product together for short period of time.

In this way two brands benefit from the huge rush of customers and enjoy an explosive increase in sales revenue due to the uniqueness of the products. A positive side effect is also the promotion of both brands involved. The Forbidden City and Beijing Bloomage HYINC Technology Co. Ltd., a supplier of hyaluronic acid for the pharmaceutical and the cosmetic industry, launched "Forbidden City Lipsticks" in 2018. Some of the colours like the "China Red" were sold out immediately after the product launch.

Another successful co-branding story is the launching of the "White Rabbit Life Lip Balm", a co-branding project by two famous traditional brands from Shanghai: MAXAM Cosmetics and White Rabbit Toffee. Cosmetic products are not simply produced by the producers but might be created by players of completely different sectors. Due to the slow economy,

factories are increasingly willing to produce smaller orders, making OEM production of cosmetics is becoming easier than ever. This trend provides more choices for the consumers and also leads to stronger competition on the market.

Opportunities and challenges for market players

Behind the above three trends are enormous opportunities and also challenges for market players. These trends correspond to the worldwide trends of youth culture, digitization and the creative unfolding of brand identity. But China has a special market and social media environment that is very different from Europe. Brands with good market knowledge and a deep understanding of Chinese history, values and today's youth cul-

ture have good chances of success and can benefit fully from the huge market. In addition to the above three mega-trends, there are still many smaller trends in terms of products, among them, the deepening of the product segment. Take hair care as an example.

Besides conventional products such as shampoo and conditioner, hair oil and scalp care products are booming. In addition, male consumers in China are placing much more emphasis on skincare and wellness. Male models increasingly appear in commercials and make-up ads. Last but not least, skin care products for babies and toddlers continue to boom. Each of these trends certainly deserves a closer look. We will continue to observe the market and share more insights in near future.

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REDUCTIONISM & SUSTAINABILITY

Ingredients | This article is an excerpt from Helga Hertsig-Lavocah's presentation at Formulate, a key UK event organised by the Society of Cosmetic Scientists. Hertsig-Lavocah discusses reductionism, sustainability as a side effect and lessons from the whiskey industry as inspiration for cosmetics and toiletries.



Helga Hertsig-Lavocah, futurologist and trend watcher, Hint Futurology, Dublin.

hen I sk myself "what does sustainability mean to you?" I instinctively answer, "buy less stuff, use less stuff." Consumers are being exposed to this message across many categories. Makeup bloggers are talking about

anti-hauls1. In laundry care, P&G, Unilever & Reckitt Benckiser are encouraging consumers to skip a wash (and use their fabric refresher sprays instead). This summer consumers in the Benelux saw giant posters from Coca Cola with the slogan, "Don't

buy Coca Cola.... Unless you plan to recycle."

Keyword "reduction"

The message is also filtering across to fashion. Huw Hughes² reported on a presentation from David Shah (owner of Metropolitan Publishing, the publishing house behind Pantone View Concept) at a recent Appletizer trend seminar. "Reduce the colours, reduce the choice, reduce the materials ... The keyword at the moment is reduction... Reduction of problems, reduction of stress, reduction of materiality." This is an incredible challenge and also an opportunity for mass market cosmetics and toiletries. We can mimic laundry care with skip-a-shower body freshener sprays. We can build on hair refresher sprays. We shouldn't be afraid to discourage use of a product. Outdoor brand Patagonia's famous ad campaign, "Don't buy this jacket "3 encouraged consumers to think before they buy, thereby reaffirming the brand as an ethical one.

"No" is the new "yes"

These signals tie into the "no" movement, which personal care has had for a long time: no preservatives, colourants, parabens etc. Now "no" is shifting from the brands that had to remove ingredients, to the consumers who say "no" to buying products. The "no" axis is moving and this is a giant trend of which we need to be aware. Finally on sustainability, we should take a lesson from Irish businessman Norman Crowley4, whose latest venture is electrification of gas guzzling super cars. Paraphrasing him, most consumers don't buy a product because it's better for the planet, they buy it for pleasure and for fun. He says sustainability should be a side effect of great product design.

Take the example of the whiskey industry

When looking for inspiration for cosmetics and toiletries, please don't hit the bottle, but do take a look at what's happening in the spirits category. Glyph⁵ molecular whiskey from

California is a great place to start. "Whiskeys owe their flavour, aroma, and mouthfeel to hundreds, sometimes thousands, of molecules that develop during distillation and barrel ageing. These are the building blocks of all spirits", says the Glyph company. "To make Glyph, we source these molecules directly from plants and yeasts, rather than obtaining them through distilling and aging. By using the same building blocks as conventional distillers, we create fine spirits through a process we've de-

enriches the experience as you see, smell and taste how your drink unfolds over time." Consumers can choose the wood and the treatment for the replacement panel. This is customisation and theatrics, two deal makers for our categories. Packaging in cosmetics is static and mustn't react with its contents. But what if it did? Could cosmetic packaging be active in some way?

Speaking of customisation, we need to look at how we sell our products. In the mass market it's transactional;

"THIS IS AN INCREDIBI E CHALLENGE AND AN OPPORTUNITY FOR THE MASS MARKET COSMETICS AND TOILETRIES."

Helga Hertsig-Lavocah, futurologist and trend watcher, Hint Futurology

veloped called note-by-note production. Glyph is biochemically equivalent to the finest aged whiskies." Not all consumers will be attracted to "biochemically equivalent?" - but those that do will be passionate about the process. In terms of story-telling it's all about the ingredient backstory at the moment, not the brand story. Can we do something similar for personal care? It can be argued that this is more sustainable practise. Madara⁶ for example was one of the first beauty brands to claim that using plant stem cells is more sustainable than using the whole plant). Glyph calls this "molecular whiskey" which taps into the "science, no BS" trend we see in skincare with the Ordinary & Inkey-List. Let's leverage this consumer appetite for other categories.

Another spirit that inspires my thinking on non-food NPD is rum and one specific concept called Brum7--Bram's rum. The spirit's bottle is based on a new concept, active packaging. That is, packaging which influences the contents of the package. Designer Bam van Oostenbruggen replaced "a section of the glass bottle with a wooden panel lets the taste develop in your own living room. It

there's no joy. Nobody says, "I'm really looking forward to buying a bottle of shampoo today." When we buy coffee, however, we have a conversation with the barista. We might talk about our mood and they will talk about the beans. We instinctively customise when we order a coffee. We can replicate the barista model at beauty counters. Reps will become beauty baristas, creating fresh products tailored to each customer's needs. At mass market, we can also learn from coffee, where coffee robots8 craft beverages for the masses. It's easy to imagine linking this into skin data.

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Interview | There are no more excuses. In every industry there are always more sustainable solutions. Jeff Huh, head of marketing at BASF Asia Pacific, has the opinion that sustainability shouldn't be a choice. It should be standard.





Jeff Huh, head of marketing, Personal Care Solutions, BASF Asia Pacific, www.basf.com

COSSMA: What are the major challenges for achieving sustainability in the field of cosmetic ingredients/packaging?

Jeff Huh: For cosmetics, emotional performance, that is, odour, skin feel and appearance, is as important as functional performance. Depending on the specific formulation, it may be challenging to develop a more sustainable solution that has both emotional and functional performance. Another challenge would be the speed of change in consumer perception, which is sometimes faster than scientific progress. This allows less and less time to develop the best solution. To give you an example: palm oil is increasingly used in consumer goods, from cosmetics to personal care products to foods. The increasing demand for palm oil results in irreplaceable rain forests and peatlands being converted for new plantations, thereby contributing significantly to deforestation, loss of biodiversity and climate change. Oil palm is the most efficient oil crop. The yield of palm oil is in average 4 tons per hectare. A shift from palm oil to another vegetable oil would result in increased land use. Furthermore, when it comes to the use of Palm Kernel Oil (PKO) in the Home and Personal Care industry, only PKO and Coconut Oil (CNO) deliver the necessary C12-C14 C-chain, or lauric oils. From a technical point of view, these two oils are interchangeable with each other. However, the CNO plantations grow in the same geographic area, and provide only 0.4 tons of oil per hectare. We are acutely aware of these concerns. Therefore, we have committed ourselves to foster sustainable palm by procuring all oils only from Roundtable on Sustainable Palm Oil (RSPO) certified sources by 2020 and expanding our palm oil sustainability commitments to significant intermediates based on palm oil and palm kernel by 2025. Likewise, addressing the consumer's concerns with fact-based practical solutions, BASF endeavours to introduce more sustainable alternatives through innovation.

What opportunities are there in view of your recent technological progress?

Despite the challenges mentioned, technological advancement does offer new opportunities. For instance, enzyme-based bioprocess enables production to be more sustainable and, sometimes, economical, Improvement in emotional performance evaluation will allow more objective, economical, and faster sensory assessment, which will lead to more efficient development. Moreover, fast-developing IT is allowing consumers to access broader and deeper cosmetic product and ingredient information. Increased consumer awareness on sustainability issues and relevant product information will continue the market-based momentum.

What do you think of upcycling and is upcycling an option in your company?

At BASF, our goal is to minimise waste by utilising every part of the natural resources we use. One example is our Rambutan Program, in which pericarps, seeds, and leaves are effectively transformed into three different cosmetic ingredients delivering hydration, hair anti-pollution, and anti-aging. From the packaging material standpoint, BASF's Chem-Cycling project offers an upcycling solution for the consumer goods plastic packaging industry. Plastic waste is transformed into a raw material using thermochemical processes. This raw material based on recycled plastic waste can be fed into the Verbund to create new chemical products with excellent product performance. The Verbund system creates efficient value chains from basic chemicals right through to high-value-added products. To produce that variety of solutions the by-products of one plant are used as raw materials of another. In this system, chemical processes consume less energy, create less waste and therefore conserve resources. BASF currently operates six Verbund sites worldwide: two in Europe, two in North America and two in Asia.

How do you define greenwashing in your field of activity? What are some major examples in this field?

Greenwashing is unsubstantiated or misleading claims about the environmental benefits of products, services, or practices. In personal care, we have witnessed claims emphasizing certain positive environmental aspects while ignoring or hiding others. For instance, the ingredients could be 100% from renewable resources, but

the packaging may be oversized with low performance. On the contrary, a 100% active solid product with recycled paper packaging may not be necessarily more sustainable if its biodegradability is poorer. Holistic evaluation of environmental impact as well as adequate communication with value chain partners and consumers is essential to avoid greenwashing. Sustainable development has been defined as the balance of economic success, ecological protection and social responsibility. To effectively manage sustainability, a company must be able to measure or otherwise quantify sustainability in each of these pillars. Most measurement and valuation methods that exist are focused exclusively on ecological aspects. BASF uses methods which reflect what sustainability is all about: balancing environment, so-

ciety and economics. By providing essential data as well as products with quantifiable sustainability performance, we help our customers develop more sustainable consumer products.

In what area do you think that sustainability in beauty products cannot be achieved and why?

I don't think there is any area in beauty products where sustainability cannot be improved. Sustainability and beauty will continue to be important topics. New technologies may replace some beauty products before we achieve perfect sustainability. The combination of consumer awareness, regulatory scrutiny and new technologies will propel the beauty industry to continue to innovate for sustainability in beauty. \Box

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LIGHT SKIN FEELING & FLUID TEXTURE

Interview | Dr Holger Seidel presents the latest developments and advantages in Pickering emulsions. This type of emulsion is named after Persival Spencer Umfreville Pickering, who published his work in 1907. Seidel explains the ways in which the production of a Pickering emulsion is different from that of other emulsions.





Dr Holger Seidel, senior technical development manager, Personal Care, EMEA, Moers, Germany, www.azelis.com

COSSMA: What is a Pickering emulsion and what are its advantages in comparison to other emulsions?

Dr Holger Seidel: Pickering emulsions are particle-stabilised emulsions. They are not an invention of modern times; Walter Ramsden, British physiologist and biochemist, described the phenomenon of an emulsion stabilised by boundary layer adsorbed solid particles as early as 1903. This type of emulsion is named after Percival Spencer Umfreville Pickering, who published his work in 1907. Advantages of o/w-Pickering emul-

sions are their light skin feeling and fluid texture which are particularly preferred for men's cosmetic products. Furthermore, particle-stabilised interfaces are extremely stable against coalescence. Because there are less emulsifiers in Pickering emulsions, they also have a higher

water resistance. This makes them particularly suitable for sun protection products.

In what way is the production of a Pickering emulsion different?

In principle, o/w-Pickering emulsions can be produced by cold/cold manufacturing. The particles are not able to develop significant spreading pressures at oil/water interfaces. This makes it difficult to obtain smaller emulsion droplets. Therefore, the production process must be adapted in such a way that the smallest possible emulsion droplets are formed during the emulsification process. The inverse production method, in which the particles are pre-dispersed into the oil phase, has proved to be successful. During emulsification, the particles migrate from the oil phase to the interface to be adsorbed there. In addition, a higher viscosity of the outer phase compared to the inner oil phase is essential to improve emulsification efficiency.

Are there any advantages in the production or is it more complicated?

Neither. Pickering emulsions can be produced in a cold/cold manufacturing process, but this applies generally to the production of o/w-emulsion gels.

What are the major challenges involved when formulating Pickering emulsions?

One challenge is the identification of potentially suitable particles for the production of stable Pickering emulsions. Simple wetting tests can be used to measure the time required for the particles to completely penetrate the water surface. O/w-emulsionstabilising particles are immersed in water extremely quickly, or at least with a short time delay. Particles that are not wettable with water stabilise emulsions of the w/o-type.

O/w-Pickering emulsions based on coated titanium dioxides, starches, silicas or even mica usually have bigger emulsion droplet sizes, up to 30 um diameter. The bigger the emulsion droplet, the higher the risk of emulsion instability. Suitable hydrocolloids such as Dehydroxanthan gum (Amaze XT, Nouryon) have to fulfil important protective functionalities to prevent the emulsion droplets from creaming or coalescening.

What effect does the wettability of particles have on the stability of a Pickering emulsion?

The wettability of the particles determines how strongly the particles are adsorbed at the oil/water-interface. If the particles are too hydrophilic, they will remain in the aqueous phase instead of migrating to the interface. If the particles are too hydrophobic, they will prefer to remain in the oil phase. Interface-stabilising particles must be partially wettable by both the water and the oil phase. The particles that are just half immersed in the oil phase have a wetting angle of 90°. These are most strongly adsorbed and irreversibly trapped at oil/water-interface. With contact angles greater or smaller than 90°, the adsorption energy of the particles de-creases exponentially.

What types of emulsions can be produced with a Pickering emulsion? What factors have an impact on the different types of emulsion?

The most important determining factor is the particle wettability. According to Bancroft's theory, the phase that wets the solid better is the external phase. Thus, solids that are better wetted by water form o/w-emulsions, those that are more wetted by the oil phase stabilise w/o-emulsions. It is well known that for the stabilsation of w/o-emulsions extremely small water emulsion droplets (usually well below 1 µm) and high internal phase volumes are required. Cosmetic solid particles that develop almost no spreading pressure at the interface and in view of their relatively large particle diameters, w/o Pickering emulsions are extremely difficult to stabilise.

What factors have an impact on the formation of a Pickering emulsion?

Besides wettability, the particle size and the particle geometry have an impact on the formation of a Pickering emulsion. For those particles which are small enough not to be



Advantages of o/w-emulsions are their light skin feeling and fluid texture.

under the influence of gravity (< < 1 μm) an exponential increase of the adsorption energy with increasing particle size is calculated. For bigger particles, above 500 nm, however, the mentioned correlation between particle size and adsorption energy is no longer valid. Investigations on adsorption energies of particles with different particle geometries have shown that the adsorption energy of particles with disk or platelet structure is highest, followed by particles of cylindrical and spherical shapes. This can be explained by the fact that interface-adsorbed disc-shaped particles have much higher and more effective capillary forces, which makes them more tightly packed in the interface.

What role do coated particles play in the formation of a Pickering emulsion?

The coating of the particles determines the wettability of the particle surface which, in turn, determines whether the particles are adsorbable at oil/water-interfaces and, if so, what kind of emulsion is formed.

The formation of Pickering emulsions is based on the use of particles. As sun care formulations are based on a high content of particles, in what way are they special?

Special grades of hydrophobic coated titanium dioxides are able to stabilise Pickering emulsions very efficiently. O/w-surface-stabilising titanium dioxide types remain in the oil droplets after the emulsification process and do not migrate into the external water phase. This allows the pigments to participate in the final oil film formation on the skin to achieve high SPF efficiency. The particles content used is therefore linked to its oil phase pigment loading capacity.

Are there any interesting examples for Pickering emulsions in sun care?

Pigment loaded sun protection emulsion gels are very popular because of

their high efficiency and light texture. Based on our results, Pickering effects are also relevant for all polymer-based sun gels containing amphiphilic titanium dioxides. Highly hydrophobic coated pigments such as stearic acid-coated titanium dioxide tend to form w/o-Pickering emulsions. Acrylate-based emulsion gels with added amounts of extreme hydrophobic coated pigments leads to the formation of in situ w/o/w emulsions.

What are the advantages of using starch in Pickering emulsions?

Modified starch particles are extremely powerful here. The o/w-Pickering emulsions show droplet sizes between 5 and 10 µm. Similar to synthetic polymers, they provide an extremely rich and velvety skin feeling. Their sebum absorption capacity can be used in many different cosmetic formulations.

What is the role of mica in Pickering emulsions and what experience is there in this field?

Mica is also able to stabilise o/w-emulsions. Only bigger emulsion droplets between 30 to 50 μm can be achieved. A special feature of these formulations is their pearlescent effect.

What effect does silica play when formulating Pickering emulsions?

In addition to surface stabilising properties, silica particles create a mattifying effect on the skin and reduce the stickiness of o/w-formulations. The delayed dry skin feeling can be exploited especially in After Shave formulations.

What are the options for optimising Pickering emulsions?

We have concentrated our investigations on particles that are commonly used in cosmetic products. Lithium sodium magnesium silicate particles gave the best results because of their extremely small particle size of ap-



During emulsification, the particles migrate from the oil phase to the interface to be adsorbed there.

prox. 25 nm. Cosmetic emulsions whose stability is exclusively based on the Pickering mechanism are rather rare. Interfacial stabilising solids compete with conventional emulsifiers, which fulfil many different functionalities such as skin feel, stability improvement, and viscosity enhancement.

The first aim was not to develop Pickering emulsions that were as stable as possible, rather to uncover Pickering effects in particle-loaded cosmetic emulsions. Nevertheless, it is amazing how many commonly used cosmetic solids are able to stabilse Pickering emulsions.

A new research approach for the production of stable Pickering emulsions consists of the application of socalled Janus particles. Janus particles are specifically designed nanoparticles or microparticles, whose surfaces are half hydrophilic and half hydrophobic. This allows the production of small emulsion droplets stabilised by close packed and strongly adsorbed particles.



PACKAGING

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AUTOMATIC AND FLEXIBLE

Packaging systems | Every season customers ask for new colours and product sizes in make-up, creating a processing dilemma for Laverana. Daniel Traub explains how a fully automatic packaging process and TLM-line solved the challenge.



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ny company within the beauty sector manufacturing cosmetic products on a somewhat larger scale needs its packaging process to be at least semi-automated. To be more efficient, many companies even prefer fully automatic production.

Thomas Haase is founder and managing director of Laverana, a medium

sized company from Germany that focuses on natural cosmetics. Haase explains: "The beauty industry is fast-moving and seasonally inspired." Laverana was looking for a flexible machine, which the company could use to implement different diameter colours and shapes. With Schuberts-Cosmetics they found a partner that offered a TLM (Toploading Pack-

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"THE BEAUTY INDUSTRY IS FAST-MOVING AND SEASONALLY INSPIRED THIS IS WHY WE NEEDED A FLEXIBLE MACHINE"

Thomas Haase, Founder and Managing Director of Laverana





The line uses pick & place robots to fill boxes with one to four colour palettes containing powder, rouge and eyeshadow

aging machine) solution for their lavera brand of powder, rouge and eyeshadow.

Efficient assembly and packaging process

Schuberts-Cosmetic TLM currently offers 13 formats. Several F4 robots, equipped with special opening, filling and closing tools, as well as high-performance image processing system, are used to place one to four cosmetics palettes into boxes in various format-dependant patterns. The throughput of the TLM line depends on the number of colour palettes per box. For boxes with one palette, known as "monos", the machine pro-

cesses around 100 products per minute. For boxes with four palettes, "quattros", it has an output of approximately 60 products per minute.

Robots working

The boxes are fed through the first sub-machine via an infeed belt on the TLM line, where they are picked up by F4 robots and placed in the "box opener". The opener handles various boxes with different opening mechanisms. "Because there are different closure types, developing the opening mechanism for the various box types was one of the challenges for our engineers," says Werner Schafauer, the responsible sales account

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>> FACTS AND FIGURES ABOUT THIS TLM

- Filling mono, duo and quattro boxes on one machine
- Currently 13 formats, additional formats can be retrofitted at any time
- Format changeover in under ten minutes
- Compact design
- · High line efficiency
- · Integrated quality control
- The TLM line's output depends on the number of colour palettes per box:
 - Mono (1 colour palette per box): 100 products per minute
 - Duo (2 colour palettes per box): 80 products per minute
 - Quattro (4 colour palettes per box): 60 products per minute



The opening mechanism can be adapted to a wide range of box types



Once all the colour palettes have been glued in place, an F4 robot equipped with a specially developed tool closes the box

manager at Schubert. F4 robots pick the boxes up again after opening and set them on the conveyor belt.

The infeed belt in the second sub-machine delivers additional boxes or colour palettes, determined by the works order. The third sub-machine is reserved for the infeed process of the colour palettes, which are picked up by F4 robots. Colour palettes are made from pressed and baked powder and are very sensitive. In order to protect them from damage or even crushing, a special tool had to be developed.

Integrated quality control

A reflected light scanner checks whether the box has been opened before the colour palettes are placed inside. The line takes into account the tolerance values of the packaging. The F4 robot passes the product over a glue station. A sensor deter-

mines whether the glue spot for fastening the palettes into the box has been placed correctly and, if so, the colour palettes are positioned in the notched locations provided in the boxes. Before being closed, the filled palettes go through a further quality control process; a 3D scanner, specially developed for the purpose, checks whether all the palettes are seated correctly in the notches and are not protruding. With the 3D scanner, Schubert is the first manufacturer to offer its customers the ability to produce a 3D image of their products. This means it is now possible to identify the heights of products. For special formats with smaller quantities, the machine also has an integrated manual packing station. In this way, the new packaging line allows Laverana to respond quickly to consumer requests, while fulfilling its own aspirations for innovation. \Box

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NEWS

SUSTAINABILITY WITH CORK

CORPACK | With the **Cork Collection** the company presents packaging materials, that should be environmentally conscientious. The cork parts used ought to be remnants of the cork production process, contributing to a reduction of oil-based materials used in the packaging of cosmetics. According to the company, Corpack has developed a range of standard components using cork elements but can also provide customised solutions for a variety of cosmetic packaging needs.

www.corpack.de



Aluminium Bottles

BALL | The new impact extruded product line shall be suitable for packaging almost any liquid. The aluminium bottles are available in a range of sizes and formats, and are customisable for various products, so the company. Ideal categories for the Infinity Bottles include shampoos and conditioners, soaps, body creams, spirits, energy shots, yogurt, dressings, syrups, condiments and more. The bottles are available with a re-closable threaded cap



and should allow consumers to twist the top on and off. According to the company, the aluminium bottles are monomaterial, making them easily sorted and recycled without losing quality.

www.ball.com



Technological Novelty

ROCTOOL | The company is introducing Roctool Beauty Solutions, an innovative technological solution that should be cost-effective, yet offers premium aesthetics and sustainability credentials. According to Roctool, thanks to their patented high heat moulding technology, they can produce plastic parts with

brilliant surface quality, avoiding secondary operations as painting or decoration and reducing the thickness of parts. It should be suitable for all types of make-up, skincare and fragrance solutions.

www.roctoolbeautv.com

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NEW SUSTAINABLE WAYS

Interview | Sustainability is a very important aspect in developing new types of packaging and decoration. Etienne Gruyez talks about how Stoelzle Glass Group reduced emissions.



Etienne Gruyez, Head of Perfumery & Cosmetics Business Unit Stoelzle Masnières Parfumerie SAS, Masnières, France

COSSMA: Etienne Gruyez, you have been working on environmental impact for several years. Where are you in the field of sustainable development now?

Etienne Gruyez: Stoelzle Glass Group is constantly working on sustainability, always trying to reduce the environmental impact of their glass production and the decoration processes. These continuous efforts are spearheaded by an integrated innovation

team, bringing together both glass and decoration experts; along with internal technical experts.

On a glass package from Stoelzle, the production process of the glass itself accounts for 70% of the CO2 emissions while the decoration accounts for the remaining 30%. On the material side, we offer several options in terms of PCR (Post-Consumer Recycled), ranging from 5% up to 60% PCR not counting PIR (Post Internal Recycled) content. As of 2020, we are offering an ultra-clear glass for perfumery and cosmetics with 5-7% PCR while maintaining the highest standard of quality. Through this action, the company will reduce its impact by 12.3%.

A glass you presented at PCD, of course. What about your development program at the Masnières plant?

This is only the first step; next summer, we will renew its furnace and increase its size from 70t/day to 100t/d. This will be the perfect opportunity to upgrade the efficiency of the furnace, as well as various production equipment. We expect to reduce the furnace's CO₂ impact by 12.3% with a capacity increase of 30 t/day. Over a year, this is the equivalent of driving around the earth in a medium-sized car 1200 times!

You also have your own decoration finishing plant on the Masnières site. Can you tell us more?

We are fortunate to be able to offer our customers the possibility of going even further in the development of

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their project, because decoration is just as important as glass in reducing the environmental impact. Led by Franck Legrand, our innovation team, has worked on our latest innovation called 'Quali Glass Coat 2.0'. Launched 2019, this new generation allows for more creativity in the customisation of bottles and jars as it offers a wide range of colours and now allows translucid effects as well as the opaque decoration.

Furthermore, our workshops have created formulations without titanium dioxide for white and light colours. We are the only glass manufacturer to be able to do this, and have filed a patent for it. Traditional decoration techniques can be applied to the bottles and new effects can be added by very fine laser engraving. Quali Glass Coat 2.0 makes it possible to reduce our CO₂ emissions by a factor of four versus standard spraying. We also work on

using new inks at lower temperature to further reduce our emissions.

Our company has long mastered lacquering, silk-screen printing, hot stamping and many other decoration techniques, while remaining in conformity with the CSR policy of the Stoelzle Glass Group. The products used are water-based. Semi-automatic working allows for adaptation to client's needs. At the Masnières site, we specialise in small quantities for luxury perfumes. Our experts are also in contact with the other sites of the group to create the decorations on large volumes.

How will you respond to the needs of your customers on these environmental issues in the coming years?

Of course, this is only a short description of all the things we are

working on every day to improve our procucts and make them even better.

In order to go further and help our customers identify and measure the impact of their choices in terms of shape, weight and decorations of their products, we have developed a database tool which creates a benchmark of CO₂ emissions with the client's first list of specifications. As a next step the database tool proposes alternatives and calculates the environmental impact.

The client can see graphs showing the evolution in CO_2 depending on the change in this or that parameter, helping him make the best decision and provide the market with better products.

The database currently calculates CO_2 emissions and will be further expanded with other environmental indicators to improve the life cycle assessment.

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FUTURE AND VISIONS

Fairs | 12–16 March, the 2020 Edition Bologna of Cosmoprof and Cosmopack will open its doors. Along with the numerous international exhibitors, a big program featuring awards, further education and thematic focal points, show new trends and developments.



leaders, agencies and trend scouts, to share the possible factors that, from now until 2030, will characterise the evolution of beauty business. "Cosmoprof Worldwide Bologna is a unique event of its kind, because it offers a complete overview of the beauty sector," says Gianpiero Calzolari, President of BolognaFiere, that operates the event. "With over 150 countries represented, more than 3,000 exhibiting companies and over 265,000 operators, the event hosts the traditions of every corner of the world, presents the excellence of each country and offers a projection of trends for the next 10 years. At its 53rd edition, Cosmoprof is still the most up-to-date industry event, following current market needs."

Cosmoprof Worldwide Bologna 2020 will welcome professionals and experts from all over the world with a thematic garden specific to each sector; from the roots of today's cosmetic industry, the vision of cosmetics in 2030 will take shape on the show floor. The experts will be able to evaluate the impact of phenomena such as the digital revolution, new forms of socialisation, attention to sustainability and environmental resources, and the multicultural evolution of our society.

Beauty business goes digital

Research and development is one of the driving forces of today's cosmetic industry. The study of new technologies, new ingredients, and interac-

COSMOTALKS PRESALE

Tickets for CosmoTalks can be purchased at a special online rate until Thursday, 12 March, 9 am CET.

www.cosmoprof.com/en/events Please note: The CosmoTalks' ticket does not allow to access Cosmoprof without a valid entrance ticket.

tion between brands and customers have all helped leading international companies establish themselves in the sector. On the threshold of a new decade, the new frontier of innovation is beauty tech. Beauty becomes digital, and artificial intelligence, virtual reality and augmented reality become key elements for taking care of one's self.

At Cosmoprof Worldwide Bologna 2020, the Service Center will host 32 start-ups specialised in online platforms, digital solutions, virtual apps for product testing, e-make-up and 3D make-up services, software and services for customisation, and new solutions for retail stores.

The area will be located within the Garden of Innovation, managed by the trend agency Beautystreams, and will be dedicated to the megatrends that will influence our society in the future and to the innovations that will characterise the beauty sector in the next ten years. Thanks to the support of the Italian Ministry of Economic Development and ITA-Italian

osmoprof Worldwide Bologna 2020 invites visitors to five days full of innovations, technologies and brand-new projects for the cosmetic industry. Cosmopack and Cosmo, Perfumery & Cosmetics from 12 to 15 March will take place. From 13 to 16 March Cosmo, Hair, Nail & Beauty Salon opens its doors. The fair will host experts, opinion



Preparations for Cosmoprof Worldwide Bologna 2020 are ongoing



Operators and companies can continue their education at CosmoTalks.

Trade Agency, the start-ups will participate in Cosmoprof Next, a pitch competition that will promote the best projects to venture capitalists, investors, buyers and institutions. The initiative is organised in collaboration with Cariplo Factory, FaB -Fashion and Beautytech, Founders-Factory, Living in Digital Times, and Unicredit Start Lab.

Cosmoprof and Cosmopack Awards

A jury made of 50 opinion leaders, representing trend experts, managers and R&D, designers, journalists and influencers, will select the best products and services for the beauty sector. Exhibiting companies interested in taking part can still send their best projects and participate in the Cosmoprof and Cosmopack Awards 2020.

Cosmoprof Awards has five categories dedicated to the best proposals in finished product: Skin Saviours, New Kid for the Beauty Salon & Spa, Hair Industry breakthrough, Make-up and Nail game-changer of the year, Nature Miracles.

The Cosmopack Awards will celebrate the excellence in the supply chain, following these five categories: the Fountain of Youth: the ageless Skincare formula, Luminary Make-up packaging, Designers' delight in packaging, the Make-up formula transformer and Champion of sustainability.

When and where?

The winners will be announced on March, Friday 13, at the Service Centre.

Further education

Some of the most qualified international experts and opinion leaders will participate in CosmoTalks, the educational section of Cosmoprof Worldwide Bologna 2020. International journalists, managers of multinational companies, influencers, and experts from the fashion, art and lifestyle sectors will offer insight on the evolution taking place in the beauty sector.

They will share their vision of the future of the industry and analyse trends, new media, digital innovations and the social and economic changes that will most influence the beauty industry.

When and where?

The ten panels of the educational program will take place Thursday 12 March to Saturday 14 March at the Service Centre.

Especially for men

During two days, the Service Centre will be transformed into a stage dedicated to men's cosmetics. Hair & Barber Forum will discuss the characteristics of this continuously growing segment. Internationally renowned hairstylists and professionals will discuss themes ranging from personal care to barber trends and from training to hair salons' future innovations.

When and where?

Hair & Barber Forum will take place Sunday 15 March and Monday 16 March at the Service Centre.

Additionally, live demonstrations and Look & Learn sessions will be



Live demonstrations will pique the interest of hairdressers and barbers

scheduled. In Hall 35, the United Barber Show will host the best barber companies in an area exclusively dedicated to this sector.

For young hairdressers

Another highlight of the show will be Hair Ring, the platform dedicated to young talents, with the collaboration of Camera Italiana dell' Acconciatura.

The creativity and enthusiasm of the young hairdressers will enrich the exhibition offering of JOY-for jewellery lovers 2020, the event dedicated to fashion jewellery co-located with Cosmoprof. On stage, glamourous hairstyles will be created coming the skill of the young hairstylists with jewellery.

When and where?

Sunday 15 March and Monday 16 March at JOY-for jewellery lovers.

For beauty salon and spa sector

The trends and innovations for the beauty salon and spa sector will be the focal points of OnStage.

For the 2020 edition, Cosmoprof proposes an innovative approach: the newest and best performing massage



Exhibiting companies can still send their best projects and participate in the Cosmoprof and Cosmopack Awards 2020



At "OnStage" experts perform live demonstrations that are especially interesting for beauty salon and the spa sector

techniques, the latest news concerning dermo-pigmentation, "sound therapy", and SPA treatments will be the subject of several live demonstrations by international experts, who will help beauty professionals rediscover the core of their professionality and training.

Sales and management techniques for the beauty sector and the latest trends in make-up will also be showcased. With the innovations and technologies in the industry, beauticians today have a unique role in the care and well-being of customers.

When and where?

Friday 13 March to Monday 16 March within the BEAUTY FORUM Gallery.

International networking with Cosmopack

Alongside Cosmoprof is Cosmopack, the exhibition dedicated to the beauty supply chain. Cosmopack represents all the segments of the cosmetic industry: raw materials and ingredients, machinery and equipment, contract manufacturing, private label, full-service providers and solutions for the beauty industry, and primary and secondary packaging. Cosmopack is the reference event for the cosmetic industry and its devel-

opment is strongly connected to Cosmoprof. The conjunction between the two events facilitates networking between suppliers and companies specialised in finished products.

From Bologna, the conjunction of the two events has gained more and more appreciation, and has become one of the most important features of the Cosmoprof format.

Growing worldwide

The global market of cosmetics packaging machines will grow by 2.7% per year between now and 2021, according to the Ufficio Studi Ucima, which also forecasts that the market will increase from the current evaluation of 2.17 billion Euro to 2.36 billion Euro. Asia will lead (from 712 to 802 million Euro), followed by North America (from 579 to 604 million Euro) and the EU (from 574 to 606 million Euro) confirming that cosmetics is a dynamic and promising industry.

Cosmopack has already started marking out the various specialties of the supply chain on the show floor, a process that will end up in 2021 with an entire hall exclusively dedicated to automation, processing and packaging machines.







NEXT STEP: COSMETIC INDUSTRY UNDER ONE ROOF



Interview | In 2020 Cosmopack will host nearly 500 exhibitors from around 30 countries, numbers which confirm the positive trend of the event. Today, the show hosts all the international leaders in the market making the Bologna event a unique opportunity to discover the latest collections, innovative formulations, high performing machinery and appealing packaging. Cosmopack Bologna is the cradle of trends and solutions for the beauty industry.



Antonia Benvegnu, Cosmopack international manager, BolognaFiere Cosmoprof Spa, Milan, Italy, www.cosmoprof.com

COSSMA: Cosmopack is growing fast. What is new for the 2020 edition in Bologna?

Antonia Benvegnu: During the last editions we significantly increased the presence of international leaders. Cosmopack has become a reference event worldwide, and attracted an increasing number of visitors, 26,000 in 2019. This growth requires us to adapt our offer to the new features of the market, and for this reason we are gradually changing the distribution of the different segments in the Cosmopack halls. For the 2020 edition, hall 19PK, the section inside hall 19 which houses the leaders in processing and packing machinery, will grow.

In 2021 we will bring the entire sector dedicated to machinery into one single pavilion, thus moving the companies still exhibiting in hall 20. Hall 15 is confirmed as the reference area for international manufacturers specializing in full services for the cosmetic industry. The focus of Hall 18 will be OEM and packaging, while Hall 20 will further enrich the product offer by displaying a selection of private label and contract manufacturers, packaging solutions and some representatives in the machinery segment. Cosmopack is highly appreciated by operators and buyers looking for innovative solutions, as well as

by influencers and trend scouters, who can get the scoop on the new collections being launched on the main international markets by major brands.

The beauty supply chain is part of the international events of the Cosmoprof network. What are the results of the editions held in the latest months? What are you planning for the future?

We have gradually introduced an area dedicated to the production chain in all Cosmoprof brand events because one of the main features of our format is to bring the entire cosmetic industry together under one roof, facilitating networking and business opportunities with brands of finished product. In Hong Kong, this process has gradually led Cosmopack Asia to occupy the entire fairground, AsiaWorld-Expo. Last July, we launched Cosmopack North America, as a reply to the continuous growth in the area dedicated to supply chain. Already attracting the leading brands coming from the east coast, this event is also interesting for the 'indie brands' spreading all over the west coast of the United States. North America also offers great business opportunities for professionals interested in the markets in Canada, Mexico and South America, thanks to its strategic proximity.

At Cosmoprof India we will invest in the supply chain sector by involving both international leaders and local suppliers in a specific exhibition area. An entire hall will be dedicated to the supply chain: formulation, private label, contract manufacturing, packaging, machinery. Cosmoprof India will be co-located with the PCIL event, hosting cosmetic and fragrance ingredients, essential oils, lab equipment, testing and regulatory solutions.

The synergy with Cosmoprof India will create even more networking and business opportunities among finished product manufacturers, supply chain players and all beauty professionals interested in sourcing the latest innovations and technologies.



Nearly 500 exhibitors from around 30 countries are expected.

For 2020, new exhibitions will be inaugurated in Asia. Cosmoprof CBE Asean will focus on Southeast Asia. Almost half of the exhibition hall will host companies from the supply chain, interested in new collaborations with growing local brands. For South China Beauty Expo in Shenzhen, we will cooperate with Informa Markets and Shanghai Baiwen Exhibition Co Ltd. We are inviting international suppliers to join us in this new project as well, helping them investigate how to enter this highly performing market.

How are you approaching these new international events? Will the format be adapted to the local markets?

All our international exhibitions feature consolidated initiatives. CosmoTalks involves KOLs, trend experts, influencers and media in seminars

and round-tables to discuss on the main issues for the evolution of the beauty industry.

CosmoTrends has become a reference content for journalists, influencers and trend scouters looking for the trends seen at each exhibition, as well as for exhibitors who use this report to develop successful collections and services. The Factory, one of the most visited areas in Bologna, has become a not-to-be-missed appointment for buyers and retailers visiting our exhibitions in the search of inspiration for avant-garde products and services.

At the same time, we work on special projects for each specific exhibition, referring on the specific characteristics for each market, thus supporting the local industries with tailor-made business tools. The perfect balance between these approaches is the secret for the success of the Cosmoprof network all over the world.



CosmoTalks involves KOLs, trend experts, influencers and media.

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29.0201.03.2020	BEAUTY FORUM SWISS	Zurich Switzerland	Health and Beauty Marketing Swiss www.beauty-forum.ch
0203.03.2020	Innocos Scottsdale	Scottsdale USA	Global Cosmetics Community www.innnocosevents.com
0608.03.2020	Beauty Düsseldorf	Düsseldorf Germany	Messe Düsseldorf GmbH www.messe-duesseldorf.de
0708.03.2020	BEAUTY FORUM WARSAW Spring Edition	Warsaw Poland	Health and Beauty Media Sp. z o.o. www.beauty-fairs.com.pl
09.03.2020	Beauty Business Day	Nantes France	Beauty Forum www.beauty-forum.fr
1215.03.2020	COSMOPACK COSMO PERFUMERY &	Bologna Italy	BolognaFiere Cosmoprof www.cosmoprof.com
COSMETICS			
1316.03.2020	COSMO HAIR & NAIL & BEAUTY SALON	Bologna Italy	BolognaFiere Cosmoprof www.cosmoprof.com
1920.03.2020	Deutscher Verpackungskongress	Berlin Germany	Deutsche Verpackungsinstitut e. V. www.verpackung.org
2728.03.2020	BEAUTY FORUM LJUBLJANA	Ljubljana Slovenia	Beauty Forum www.sejemkozmetike.si
2829.03.2020	BEAUTY FORUM CLUJ	Cluj Romania	Health and Beauty Business Media www.beauty-forum.ro
2829.03.2020	BEAUTY FORUM TRENČÍN	Trenčín Slovakia	
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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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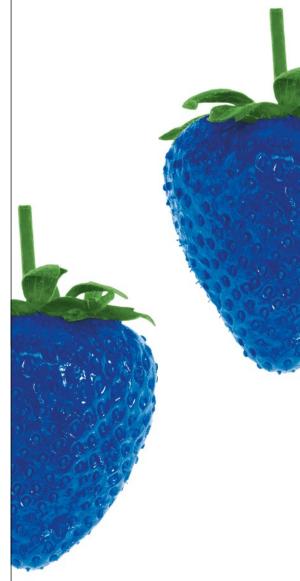
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PREVIEW

APRIL 2020

▶ GO FUTURE: BODY CARE



Relevant developments at a glance

➤ SPOTLIGHT: GREEN CONCEPTS



New formulations and manufacturing processes - these are the trends.

> PLUS

- New ideas of promotional packaging, displays and appealing boxes to create bestsellers.
- Intelligent, process-oriented management systems an alternative to established quality Management standards?
- Preview: The latest trends presented at the in-cosmetics Global.

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