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SPOTLIGHT: THE MICROBIOME

How much potential does it have for personal care?

Rishabh Pande, DSM

"RECENT RESULTS IN INNOVATION"



"OUR INNOVATION STRATEGY IS FOCUSED ON BRINGING MARKET-RELEVANT SOLUTIONS TO OUR CUSTOMERS"

Rishabh Pande, Vice President Marketing & Innovation, DSM Personal Care & Aroma Ingredients

THE LATEST INNOVATION RESULTS

Interview | In 2018, with an organic growth of 11%, DSM achieved their best ever business results in personal care. What are DSM's latest advances along its innovation strategy? What are the company's latest developments in the skin microbiome, sun protection and sustainability? Rishabh Pande, Vice President Marketing & Innovation, explains.

COSSMA: It's been a year since we talked to DSM about the company's new strategy and ambitions in the PCA (Personal care and aroma ingredients) space. What are the growth strategies you are pursuing today and what has been happening in the course of the past year?

Rishabh Pande, Vice President Marketing & Innovation, DSM:

The year 2018 saw us achieve our

best-ever business results in PCA, posting an 11% organic growth. All personal care product segments delivered well above market growth, while aroma ingredients also performed very strongly. Successful commercialisation of the innovation pipeline further contributed to a very good year for the business.

We were especially happy with the results of our biennial **Net Promotor Score** customer survey, which revealed PCA's best-ever ranking across the corporate group and the highest ever score from our customers. This confirms that we are on track with

our ambition to become the number one partner in our customers' hearts.

How would you define your current innovation strategy, and what progress have you made with innovation?

Our innovation strategy is focused on bringing market-relevant solutions to our customers - be it in the form of new-to-the-world molecules or new and exciting information on existing portfolio ingredients. We are constantly building and leveraging our internal innovation competences on core technology platforms such as photoprotection, peptides and polymers, while at the same time continuing our expansion into new fields such as the skin microbiome. Open innovation, through partnerships and collaborations, remains an integral part of this strategy.

Let me cite a few examples: One of our most exciting product launches in 2018 was **Bel-Even**, a patented synthetic molecule that helps counteract the damaging effects of stress on skin

by inhibiting the enzyme that generates cortisol in the skin.

In addition to this, and once again in line with the needs of the market, we launched **Parsol ZX**, a zinc oxide grade suitable for a wide range of products. Mineral UV filters such as zinc oxide and titanium dioxide are marketed today as natural sunscreens – a key consumer desire. Using our expertise in formulations, we showcased solutions that changed perceptions about all-mineral sun products.

In response to customer questions around naturalness and sustainability, we launched our **House of Naturals** – an easy-to-use navigation aid that offers customers clarity about the degree of natural origin in our ingredients. At present, almost half of our personal care & aroma ingredients portfolio is of completely natural origin, while the natural origin content of more than 70% of our skincare actives exceeds 90%. True to our long-term commitment to transparency, we obtained well-known certifications such as **Cosmos** and **NaTrue**,

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Volume is one of the top desired benefits in hair care, yet one of the most complicated to achieve without compromis-ing care properties

while according to the recently introduced ISO 16128 standard on definitions for natural ingredients, more than 45% of our portfolio is of natural origin.

What have you done to advance your polymer business?

Our goal is to extend our polymer portfolio to include greener and more sustainable polymers. To achieve this, we are building partnerships and collaborations. Internally, collaboration with our colleagues in materials sciences in the field of polymer technology enabled us to select the polymers that make up our Tilamar range of hair care and hairstyling ingredients from a huge existing portfolio of polymer types.

This year, we successfully launched our new volume boosting ingredient for hair care, Tilamar Boost 150, answering a key unmet need of the market.

Volume is one of the top desired benefits in hair care but it's one of the most complicated to achieve without compromising care properties. Based on 50 years of expertise in materials science, we identified a hyper-branched polymer to fill this gap. It offers both tremendous volume and care properties.

Gareth Barker, President DSM Personal Care & Aroma Ingredients, last year talked about the increasing interest in the skin microbiome. Is this an on-going phenomenon?

I'm happy to see that our industry has made great strides in microbiome research in the past year. Overall, microbiome-related actives are expected to rapidly grow and cover around 12% of the total bioactives market (€2.1 billion in 2022) which would result in some €250 million by 2022.

All personal care product segments delivered well above average market growth in 2018

> Natural sunscreens

are a key consumer desire

DSM's three key growth drivers are innovation. partnership and collaboration

We already hold a strong position in gut microbiome research and solutions, with our Culturelle product range. We are leveraging this access to microbiome expertise, large-scale cultivation of micro-organisms and formulating live organisms into stable products to drive progress in skin microbiome research.

Specifically, with regards to the skin microbiome, many consumer product companies, test laboratories, research and substantiation companies, as well as our direct competitors have started developing solutions. As one of the major industry experts in epidermal science, we have vast knowledge about the skin - the home of the skin microbiome - which we have leveraged to develop our solution Epibiome Beauty.

This approach is built on the belief that a strong epidermal barrier and balanced skin microbiome are both needed to restore, strengthen and preserve healthy skin. It aims to develop a clear, scientifically proven link between changes in the composition of the skin microbiome and changes in physical skin conditions triggered by specific ingredients. At this year's In-Cosmetics, we presented the results of a new study designed to deepen understanding of the complex relationship between normal, dry and oily skin, barrier function, and the skin microbiome. It showed how three actives in our current portfolio played a role in skin's healthy appearance by working with the skin microbiota. Pursuing our open innovation strategy, we are seeking to collaborate with multiple start-ups already active in this field to bring real, consumer-relevant solutions to the market as quickly as pos-

What else are you aiming for in microbiome research and products?

In addition to the encouraging discoveries about how skin actives

"THE SKIN MICROBIOME HAS THE POTENTIAL TO REVOLUTIONISE THE APPROACH TO SKIN AND POSSIBLY HAIR CARE"

Rishabh Pande, Vice President Marketing & Innovation, DSM Personal Care & Aroma Ingredients

in our existing product portfolio work on the skin and scalp microbiome, in the mid- to long-term we will be in a position to offer novel approaches and innovative pre- and pro-biotic solutions.

We also finalised a collaboration with S Biomedic, a Belgium-based life sciences company pioneering a new approach to the cosmetic and therapeutic potential of the skin microbiome.

And to promote discussion and research into the skin microbiome we launched a new educational blog, The Secret Life of Skin.

What is the concept behind the launch of this blog?

We saw a clear market need - both for our customers and at the consumer level - for information and inspiration around the topic of the skin microbiome. We don't see this as a "here today gone tomorrow" concept. On the contrary, we believe research into the skin microbiome has the potential to revolutionise how we approach skin care and possibly hair care. While our ambition is to lead the way in promoting the science, research and discussion around the skin microbiome, we are all basically starting from scratch. We therefore want to encourage knowledge-sharing across the industry to strengthen our understanding of and capabilities around this new phenomenon and speed up its development and adoption by consumers

Sustainability has long been a core focus for your company. What progress have you made at PCA towards achieving your sustainability goals?

Sustainability is a common thread that runs through everything we do at DSM. The UN's Sustainable **Development Goals** are woven into our strategy. We are very aware that our customers as well as consumers care increasingly about the environmental impact of the

DSM'S PERSONAL CARE STRATEGY AT A GLANCE

DSM's personal care strategy is based on three key growth drivers: Product segments, innovation and partnerships/collaborations. The business is steered along four product segments photoprotection, bioactives, technical and performance ingredients, and aroma ingredients - and there is a very clear strategic ambition of what DSM wants to achieve in each segment. This clarity allows the company to focus on innovation, partnership and collaboration activities on the strategic imperatives of each segment, driving coherence and alignment throughout the organisation. In addition to these three key growth drivers, DSM's strategy is focused on improving and leveraging their business and operational excellence as well as their service offerings (including sustainability) in order to bring the best value propositions to their customers.

STRESS

Bel-Even helps counteract the damaging effects of stress on skin by inhibiting the enzyme that generates cortisol in the skin ingredients in their products. We have long prioritised these concerns, and are constantly developing and improving programs that increase the transparency and traceability of our products and processes. For example, we are currently running several internal programs on our current and future UV filters and polymers portfolio to gain deeper insights into their impact on the environment.

We believe our responsibility to people and the planet does not end at the factory gate. We care about the whole lifecycle of our ingredients. In particular, we want our customers to know and rest assured that any claims we make for our ingredients are evidence-based and objectively verified. Furthermore, we want to inspire them with innovative solutions and strategies to enhance the sustainability credentials of their own brands and products. This plays a crucial role in our objective to become not only a trusted supplier, but our customers' number one partner.

How do you intend to implement this objective?

Our motto is Improve, Enable & Advocate. We aim to improve and adapt our own operational impact by further improving safety, decreasing our emissions and stepping up our use of renewable energy. We enable our customers

DSM showcases solutions that changed perceptions about all-mineral sun products



Only 14% of men, compared with 30% of women, use sun protection daily

and partners to deliver sustainable and healthy solutions for the planet and society. And finally, we advocate for the future we believe in and fully accept our responsibilities as an active part of society.

In our business group, we are currently rolling out a novel program which will maximise transparency and traceability with regard to all our ingredients. The idea is to visualise the sustainability profile of individual ingredients, focusing on four pillars: environmental impact, social impact, traceability and identity. Stay tuned for more on this initiative.

What does this mean in practice?

I think our approach to sun protection perfectly illustrates what this means. In the last few years, we have stepped up our efforts to reduce the incidence of skin damage due to sun exposure, not only through new and improved sun care products, but also by raising awareness through our Safer Under the Sun programme. We are of course eager to make a significant contribution towards reducing the number of people living with preventable skin cancers by offering the best sun care solutions available. One such contribution is our cooperation with Team Sunweb.

Knowing that only 14% of men, compared with 30% of women, use sun protection daily and that increased recreational exposure to the sun among men is putting them at even greater risk, we looked for effective ways to reach this group. Working with the professional cycling team Team Sunweb, we developed a special sunscreen formulation

that addressed the team's requests for solutions that would be both durable and comfortable to use. Over



Microbiome-related actives are expected to cover around 12% of the total bioactives market in 2022

a series of race days, these cyclists applied our Millennials SPF 30 Light Texture Lotion. They found that sun care products can be quick and easy to apply, as well as holding up for prolonged periods in tough, competitive environments. This allowed us to showcase a powerful example of men building sun protection into their daily safety routine.

In the USA, our endeavours are going well beyond awareness-raising and education. Currently in the United States, there is a 20% chance of people developing skin cancer by the age of 65.

However, the fact is that there are only 16 UV filters currently approved for use in the USA, compared to the 27 approved in the EU. And following regulatory updates in February of this year, only zinc oxide and titanium dioxide are still "Generally Regarded as Safe and Effective" (GRASE). Further data is required before GRASE status can be granted to the remaining 14 filters.

The current testing for GRASE status proposed by the FDA would take years to complete. Therefore, we are proposing an accelerated approach to UV filter safety assessment, taking our UVA Filter PARSOL 1789 as an example. This filter, which is marketed as Avobenzone in the USA, is the only dedicated UVA absorber

> approved there, making it crucial to achieving well-formu-

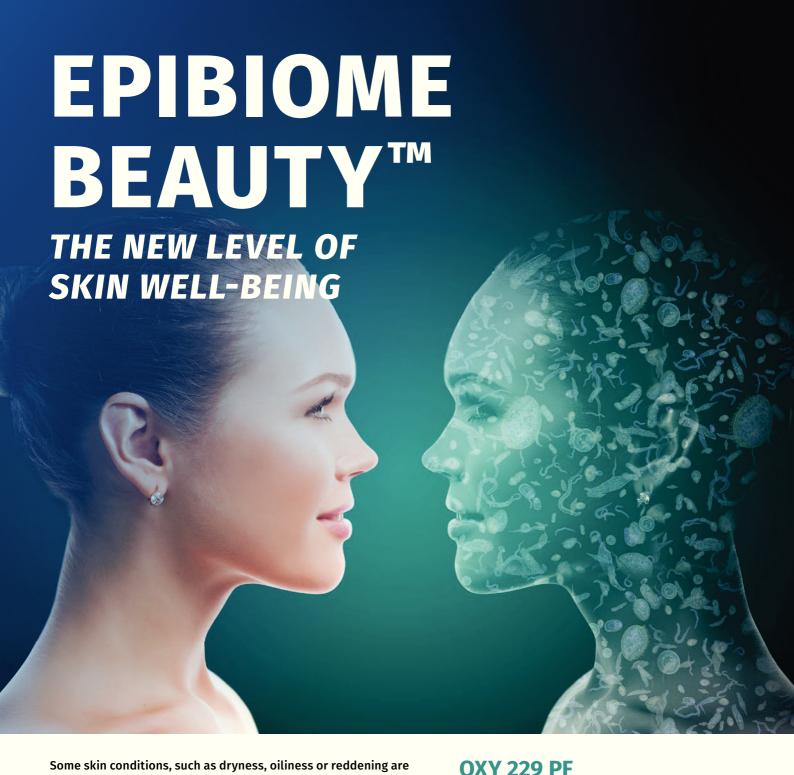
> lated products with high UVA protection. Our alternative scientific approach would use "real world" empirical human use data obtained from the FDA's recent maximal usage trials. These demonstrated that the use of Avobenzone in sunscreens should be considered safe even up to 5% -

higher even than the level currently allowed. We further proposed that if an ingredient is determined to be GRASE, it should be allowed to be used in combination with the other GRASE ingredients zinc oxide and titanium dioxide without limitation. We are also preparing to submit the necessary data to the FDA to support a GRASE determination for Bemotrizinol (BEMT). This photostable broad-spectrum filter, marketed today under the trade name Parsol Shield, efficiently provides UVB and UVA protection even at low concentrations, is easy to use and compatible with other UV filters, both organic and inorganic. We believe it has an important role to play in improving sun protection in the USA. We have therefore met with the FDA and will be providing it the necessary scientific data to support a review and determination that this filter, under the INCI name Bemotrizinol, to be generally recognised as safe and effective for over the counter sunscreen product use.

Looking to the future, what is the outlook for 2019 and beyond?

Our outlook continues to be bright. I expect this year to be another successful one for us as well as for our customers, with whom we share this journey. With shared goals in respect of people, planet and profit, I believe that together we're unstoppable. \square

Additional information can be foun on the Internet – see Internet panel



Some skin conditions, such as dryness, oiliness or reddening are instantly recognizable to the human eye or touch. In contrast, the community of micro-organisms on the skin's surface that influences such conditions is completely invisible.

In a new, all-in-one clinical study, we have aimed to show both the seen and the unseen – the complex relationship between normal, dry or oily skin, and its microbiome.

Treatment with specific, well-established skin care actives, resulted in beneficial effects in normal, dry and oily skin conditions.

reducing Corynebacterium Kroppenstedtii levels.

SYN-UP®

ALPAFLOR® ALP®-SEBUM

reduces sebum and minimizes Corynebacterium

Kroppenstedtii levels to keep skin looking fresh.

fights against dry and red skin conditions by

boosting Staphylococcus Epidermidis and

controls oily skin by down-regulating sebum and Cutibacterium acnes levels.



