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65th SEPAWA Congress & 14th European Detergents Conference

10–12 October 2018, Estrel Congress Center, Berlin

K. Henning



The 65th SEPAWA Congress was held in conjunction with the 14th European Detergents Conference (EDC) at the Estrel Congress Center in Berlin.

The change of the venue to Berlin was furthermore characterized by great acceptance concerning the number of congress visitors rising to over 3100 participants from more than 60 countries as well as the exhibiting companies with an increase almost 300 exhibitors. With these figures new records were reached of both participants and exhibitors.

A program of scientific lectures offered a broad range of comprehensive information on the characteristics and functions of surfactants and detergents, examining both the scientific basis of these products in the 14th European Detergents Conference, as well as the practical applications in the different sessions on detergents, cleaning products and cosmetics. The lecture series „Forum for Innovations“ featured 69 short presentations on new product developments, applications and procedures for detergents and cosmetics.

The stability of protease in liquid detergents is a challenge which can be achieved using protein engineering, so as the performance of a surfactant can also be controlled by the molecular structure. The use of the high performing surfactant methyl ester sulfonate enables the possibilities of builder's reduction. Functional proteins can absorb on surfaces of metal, plastic or glass leading by interaction via hydrogen bonds to a stable but swellable bound protein network. As soon as water droplets hit the surface, the protein network attracts the water molecules and creates a closed, hydrophilic protective layer. This protective layer facilitates the subsequent cleaning.

The cosmetics lectures cover the sustainable impacts of ingredients and considered the question whether the prevention of vector borne diseases with insect repellents for mammals and pets is in contradiction to social and environmental sustainability. With sustainable gifts of nature epigenetic mechanisms can be controlled. The lectures were presented together with the SEPAWA Specialist Group Cosmetic Applications and Technology (CAT) and the German Society for Scientific and Applied Cosmetics (DGK).

The subject of the sustainability of detergent ingredients was presented jointly by the Detergents Committee of the German Chemists Society (GDCh/HAD) and the SEPAWA Specialist Group Legislation, Environment and Consumers (LUV). The certification of renewable raw materials was presented in comparison of criteria applied by diverse certification systems. An objective is the development of the standardization of bio-based surfactants. Microplastics in the aquatic environment has become a problem so that the EU Commission has developed a corresponding strategy.

The German Society of Perfumers (DGP) reported on IFRA Standards as the fragrance industry's self-regulatory approach, on the Nagoya protocol, on allergen labelling and smelling beyond the nose giving expression and physiological function of extranasal olfactory receptors.

The SEPAWA Young Researcher Award for students of excellent final qualifications was awarded for 3 outstanding master's, 2 bachelor's and 3 doctorate theses. The SEPAWA Innovation Award for new developments in the field of cosmetics and detergents was granted to 3 prizewinners.

Also the Young Researcher Award of the GDCh Specialist Group Detergency and Formulations was awarded to three winners at the 14th European Detergents Conference for outstanding scientific research.



Interaction and Surface Adhesion of Surfactants

In the **European Detergents Conference** 10 lectures and 16 poster presentations addressed, among other topics, interaction of material surfaces and biology, strategies to control the adhesion of solid faces using polyzwitterions, ways to tune the interaction of bacteria with surfaces, using amphoterically-modified biopolymers for hydrophilization of surfaces and on properties and applications of new product developments.

Vivian J. Spiering, Michelle Tupinamba, Reinhard Schomäcker, TU Berlin, and *Michael Gradzielski*, Stranski Laboratorium, Berlin, reported on “Characterization of self-assembled surface active CO₂/EO Compounds in aqueous solution”.

The ethoxylation of fatty alcohols is the established synthesis route for the production of nonionic surfactants. This group of products covers more than 50 % of all worldwide consumed surfactants, because of their wide spectrum in aggregation and adsorption properties.

The essential physical properties of these surfactants like surface activity and aggregation behavior which can easily be varied by the choice of the fatty alcohols and different degrees of ethoxylation, or an approach which enables the introduction of a variable number of internal carbonate groups. As a con-

sequence, the chemical properties of the headgroup can not only be varied by the length of the polyethylene oxide chain, but also by the ratio of the EO and CO₂ units within this chain. In this study the characterization of these CO₂ containing surface active compounds is presented with respect to their colloidal properties, surface activity, and their self-assembly behavior, and this as a function of temperature. Compounds with different CO₂ content and alkyl chains are compared in a systematic fashion also to their commercial alkylethoxylate counterparts. The surface-active behavior is characterized via surface tension measurements, which also allows to determine the critical micellar concentration (CMC) and additionally the calculation of thermodynamic parameters. Furthermore, the HLB values are determined to give a detailed information about the application potential.

Finally, the micellar structure was characterized by dynamic (DLS; **Fig. 1B**) and static (SLS) light scattering as well as by small angle neutron scattering (SANS), where the data gives detailed insights into the mesoscopic organization.

From the scattering data a consistent picture of the micellar structure as a function of concentration as well as of the temperature can be obtained (**Fig. 1A**). This structure is in general depending on the length of the EO chain and the CO₂ content and therefore the understanding and comparison of the shape and behavior is characterized via surface tension measurements, which also allows to determine the critical micellar concentration (CMC) and additionally the calculation of thermodynamic parameters. Furthermore, the HLB values are determined to give a detailed information about the application potential.

Laundry and Cleaning Detergents for Home Care

In the **Session Home Care** 7 lectures addressed the properties, applications and new developments of products. The topics related to factors influencing the microbial reduction in dishwashers, to proteins forming in contact with water a hydrophilic protective layer which facilitates the subsequent cleaning, to high performing methyl ester sulfonates enabling a reduction of builder content, to a new eco-friendly surfactant generating thick and long lasting foam, to the characterization of volatile surfactants and the areas of applications and the sensory performance of acrylate based fragrance encapsulation.

From this session reported *Christian L. Gylstorff*, Novozymes, Bagsvaerd, Denmark, on “Improving enzymes for laundry applications using protein engineering”.

The use of enzymes in commercial laundry detergents is dependent

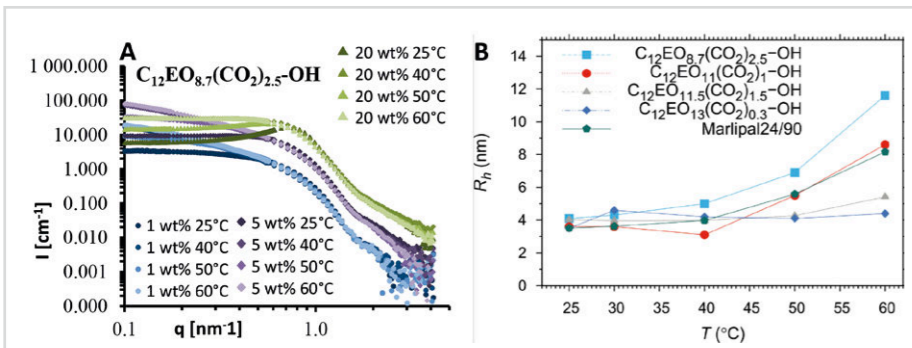


Fig. 1 (A) SANS spectra of temperature dependent measurements of the surfactant C₁₂EO_{8.7}(CO₂)_{2.5}-OH (1wt% (blue), 5wt% (violet) und 20wt% (green)) at 25°C, 40°C, 50°C und 60°C. (B) Temperature dependent hydrodynamic radii of the C₁₂EO/CO₂ surfactants calculated via DLS measurements.



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The annual **SEPAWA Young Researchers' Award** meets one of the SEPAWA's most important objectives to helping to promote the training of the next generation of specialists. The prize is given to students for outstanding bachelor, master and doctoral theses. The jury selected 6 prizewinners from the submitted works.

Three prizes were awarded for outstanding bachelor theses. The first prize was awarded to **Torsten Boeddecker**, from the Highschool Ostwestfalen-Lippe for his work on "Optimization of fragrance containing encapsulation systems." The second prize went to **Daniela Ivanov** Universität Hamburg for her thesis on: "Investigations on the connection between epidermal lactic acid and the physiology of the skin in consideration of biochemical aspects." The third prize winner was **Madeleine Baune** from the High-school Ostwestfalen-Lippe for her Bachelor diploma: "Biophysical measuring methods to determine the influence of natural greying of human hair on the efficacy of cosmetic polymers."

Also three prizes were awarded for outstanding master theses. The first prize was awarded to **Timo Bollmann**, TH Köln – University of Applied Sciences, for the paper on: "Synthesis and physiochemical characterization of microbial sophorolipids." The second prize was given to **Britta Malcher**, Universität Hamburg for the thesis: "Evaluation of methods to determinate the efficacy of aluminum free", and the third prize was awarded to **Annemarie Schiewe**, Universität Hamburg for: "Alternatives to cosmetic raw materials of petrochemical or animal".

The picture shows the prize winners, **Dr. Hansjürgen Scholz** and **Prof. Dr. Andre Laschewsky**.

on the benefits that these can deliver in wash, but also on enzyme being stable in detergent formulation. The development of enzymes with a sufficient stability is a challenge particularly for liquid detergent formulations, and for these, it is often necessary to make subtle changes to the enzyme itself through the process of protein engineering.

Recent technological advances in the use of robotic systems and methods for identifying enzyme variants have made it possible for a step-change in the ability of Novozymes to optimize the performance and stability of an enzyme for a specific application. The use of advanced data analysis and 3D modeling furthermore enhances the ability to arrive at an optimal solution for the detergent producer, thus bringing the environmental benefits, of low-temperature, high performance cleaning to consumers worldwide. Occasionally face trade-offs in the development process are necessary, and it therefore remains an art to develop enzymes that perform well, are ultra-stable and can be produced in amounts that enable the inclusion in a wide range of laundry segments.

Sustainability, Standardization, Product Labelling and the Problem of Microplastics

In the **LUV/HAD Session 7** lectures were given on the comparison of applied certification systems for renewable raw materials, of the journey to standardization of bio-based surfactants in Europe and of the product labelling of cosmetic with "Free from...". The EU Commission's Plastics strategy was discussed and attention was drawn to the fact that a lot of gaps have to be closed. Borderline cases in the legislation for biocides of cosmetic products and detergents still exist. Also the phosphonate input into aquatic environment was discussed.

J. Tropsch, BASF SE, talk about the actual situation to the "Standardization of bio-based surfactants in Europe". The European Commission decided in 2011 to become the first bio-based economy. In the following the EU issued a mandate (M/491) to CEN to develop a standard on bio-based surfactants among other product groups. A new working group within CEN was created to deal with the standardiza-



tion process (CEN/TC-276 WG3). The working group issued the technical specification CEN/TS 17035 published in April 2017.

CEN/TS 17035 specifies the thresholds on the biogenic carbon content (5%, 50% and 95%) and the naming as well as the methods to determine the content of biogenic carbon (e.g. radiocarbon method according to EN 16640). The working group will finalize the European Norm and a Technical Report (TR) in 2018. The standard might be used in European ecolabels and in public procurement.

Susanne Hardt, Dr. Knoell Consult GmbH, reported on "Borderline cases in the legislation for biocides, cosmetic products and detergents".

The Biocidal Products Regulation (BPR- Regulation EU No 528/2012) applies to biocidal products, with the exception of, amongst others, products that are regulated by other regulations such as cosmetic products as defined and covered by the Cosmetic Products Regulation (CPR- Regulation EC No 1223/2009). There are, however, products on the market which not only have a biocidal, but also a cosmetic function and hence, it may be difficult to classify these products as either a biocidal product or a cosmetic product.

In these borderline cases, the decision on a product's classification has to be taken on a case-by-case basis. In principle, the primary function of the product will determine the regulation for which the product has to be dealt under. It is, however, possible that cosmetic and biocidal products are regulated through both the CPR and the BPR.

Products like sunscreens containing an insect or jelly fish repellent active substance may serve primarily for cosmetic purposes but at the same time serves for an equally important biocidal purpose. This product will therefore have to be regulated by the cosmetics legislation with regard to its cosmetic purpose and by the biocides legislation with regard to its biocidal purpose.

The Detergent Regulation (Regulation EC 648/2004) deals with detergent products and cleansing agents. These products may in addition contain a biocidal active substance, like e.g. a quaternary ammonium compound.

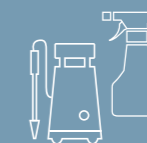
Biocidal substances are incorporated into detergent products to give them antibacterial, antimicrobial, disinfecting or sanitizing properties. In this case products have a biocidal claim, they must comply with the Detergents Regulation and the BPR (dual use).

Protection of Skin and Hair

In the **DGK/CAT Session** in 12 lectures was reported on the optimization of microbial synthesis of cellobioselipid bio-surfactants using *Ustilago maydis*, on complex organic molecular structures for a time and the phenomenon of biodegradation and its ecological dimensions, on novel color mapping technology making hydration visible and on the question whether the prevention of vector borne diseases with repellents for



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mammals and pets is in contradiction to social environmental sustainability.

The use of polyurethanes for sustainable formulations was discussed as well as a sustainable approach for shampoos and conditioners and the blockchain technology in the guar supply chain game over. Research activities on exploring synergy in natural-like elements for antimicrobial efficacy and sustainable gifts of nature to control epigenetic mechanisms were presented.

From these topics *Bettina Magsaam*, Merck KGaA, raised the question "Is the prevention of vector borne diseases with repellents for mammals and pets in contradiction to social and environmental sustainability?"

A major challenge for products in the category of insect repellents is to protect the health of the consumer and the environment and to give contribution to all social aspects of responsibility. Best achievement of this objective will be the complete harmonization of all of the three concerned key aspects: health of people, eco-friendly and cultural aspects – to combine in effective repellents: Complementary measures of prevention from vector-borne diseases: A long-term and safe protection of people from mosquito and tick bites to safeguard from life-threatening infections like Lyme disease, Dengue Fever, Malaria and many more.



Safety for the environment: Repellents, that neither accumulate nor persist in the environment advantaging other substances.

Safety for consumers of all generations: Product authorization allows the use on humans of all ages and multiple repeated application per day.

For an outstanding sustainability and a health driven concept of an insect repellent scientifically validated efficacy studies proofing e.g. superior long-term protection of 9 to 11 hours against several species of ticks, like ixodes scapularis, ricinus and persulatus, utilizing formulations with a low chemical load of a biodegradable active substance offering all-day long protection fulfilling social aspects and sustainability demands. Having these data on hand formulators can create excellently tolerable products for infants, pregnant women and the elderly generation with a sensitive skin. At the same time the environmental protection is ensured, but not at the risk of a shorter protection time or a restricted amount of use.



Young Scientists' Award of the GDCh Specialist Group Detergency & Formulations

GDCh Specialist Group Detergency awarded 3 young scientists for excellent scientific works with special relevance for the development of detergents and cleaners.

Price for the best dissertation received *Dr. Thimo Fassbach* for his paper: "Bio-based Surfactants by Homogeneous Catalysis: Approaches to Process Development".

Timo Bollmann was awarded for "Synthesis and physiochemical characterization of microbial sophorolipids".

And the price for the best bachelor paper was given to *Marc-Kevin Zinn* for the paper: "Development of a testing method to analyze the hygienic performance of industrial fresh water dishwashing machines".



Dr. Thimo Fassbach



Timo Bollmann



Marc-Kevin Zinn



EUROPEAN PRESENCE MULTIPLE SUPPLY SITES





SEPAWA Innovation Award

SEPAWA Exhibition

The exhibition floor with 262 exhibitors was busy throughout the opening hours. A well-filled exhibition floor resulted in lively activities on all booths. All over people were talking and discussing with peers. Already now 90% of the space for 2019 has been reserved.



Innovations are crucial for growth and competitiveness and are an important precondition for competing successfully in the global market. For the sixth time, this year's **SEPAWA Innovation Award** from the areas of cosmetic and detergents was awarded to three prizewinners. The prize is supposed to generate impulses for an active management of ideas in the member companies of SEPAWA and raising public awareness to the appreciated innovation. A neutral independent jury of 6 members from the scientific board of SEPAWA and the Chairman of SEPAWA selected 3 prize winners out of 27 proposals submitted. The Prize consists of a certificate and a trophy, which shows the SEPAWA wave in stylized form.

The first prize was awarded to BASF AG, which was received by **Ute Griesbach** for the "High SPF sunscreens that feel light on the skin". The second prize was awarded to **Jana Ruffert** and **Stefan Sakulowski** in behalf of Schülke & Mayr GmbH for: "euxyl® K 830: Innovations in preserving cosmetic products OXC Efficacy Enhancing System". The third prize, which was accepted by **Beata Hurst**, was given to mibelle biochemistry Group for the ingredient innovation: "MossCellTec™ No. 1".



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A Fragrant Berlin! *a fragrant Berlin*

For the first time, at this year's SEPAWA Congress at the Estrel Hotel in Berlin, the **German Society of Perfumers** and the **SEPAWA** offered a greatly expanded range of topics related to fragrance to congress participants. With a perfume-accompanied fashion show, five specialist lectures and a panel discussion as well as the new DGP Fragrance Lounge, fragrance topics were conveyed to the general public in an entertaining and informative manner – very much in keeping with the mission of the DGP.



Fragrance Lounge

For the **Fragrance Lounge**, the DGP board and advisory board had developed a modern concept – a spacious area for those interested in fragrance, in which perfumers and fragrance experts explained the basics of perfume composition this year. With three creations (Yellow Summer by **Dirk Linder**, Fougère Naturelle by **Jörg Zimmermann** and Velvet Forever by **Élise Bénad**), the visitors experienced the head, heart and base notes of the fragrances as well as their interplay, and also received answers to further individual questions. The new Fragrance Lounge was very well received and was an unmistakable indication of the importance of fragrance in the consumer business.



Many senses were also in demand at the **Get-Together** on Wednesday evening. Three fragrance houses had each created a perfume, which was presented to the participants in sample size at the entrance. These creations had inspired fashion design students from the Hochschule für Technik und Wirtschaft (University of Applied Sciences) with their designs for a feminine, a masculine and a unisex collection. DGP President **Dr Edison Diaz** welcomed guests to the fragrance fashion show, which addressed both nose and eyes.

On Thursday, **Lectures on Fragrance** topics were offered for the first time throughout the day.

The first of these was given by the world-renowned biologist and physician **Prof. Hanns Hatt** from the Department of Cell Physiology at the Ruhr University Bochum with his lecture „The Power of Fragrances: Extranasal Olfactory Receptors and their Function“. **Prof. Hatt** explained the mechanisms of olfaction in the nose and then showed that olfactory receptor proteins are also

found in many other body cells where they play a role in the regulation of biological functions. It was found that sandalore increases the activity of keratinocytes – skin cells tend to renew themselves and wound healing is accelerated. The activation of an olfactory receptor found in human heart muscle cells has been shown to have an inhibitory effect on the heartbeat. And a certain olfactory receptor is an unmistakable marker for breast cancer because it is found in such cancer cells, and only there, on a massive scale. The elucidation of the function of extranasal receptors can provide new insights into physiologically and patho-physiologically relevant processes in the body and gain great importance for diagnosis and therapy in the clinical field. Further advances in research will also help to understand how fragrances can change our mental state and mood, influence purchasing behaviour or accelerate the healing of diseases through aromatherapy.



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The work of IFRA (International Fragrance Association) was presented by **Dr. Matthias Vey**. IFRA is the self-regulating organisation of the fragrance industry. IFRA has been setting standards for the safe use of fragrances in consumer products since 1973, based on scientific research and evaluation by independent research institutes (RIFM – Research Institute for Fragrance Materials) and expert committees. By the end of 2021, all approximately 3000 known fragrances are to be assessed for their safety in use. The 49th addition to the IFRA standards is scheduled for the end of this year. In many areas, compliance with the rules set by IFRA is the minimum requirement for the safety assessment of fragrances by users.

Dr. Cécile Gonzalez (IFRA) explained „**The Nagoya Protocol and the rules for fair and equitable sharing of benefits gained: Challenges for the Fragrance and Flavour Industry**“. The Nagoya Protocol is about countries whose genetic resources and traditional knowledge will be commercially exploited through further research sharing the benefits. To this end, each affected country must establish its own rules. This leads to a complex and diverse set of rules that IFRA and IOFI (International Organization of the Flavor Industry) monitor globally to support the industry.

In the first contribution in the afternoon, **Prof. Dr. Władysław S. Brud** (Pollena-Aroma Ltd., Poland) gave a lecture titled „**Natural' and 'Organic' in cosmetics and related products and ingredients**“ on the poorly coordinated definition of these classifications for products. This leads to a very unclear situation in the market and in legislation. Prof. Brud suggested that industry and international bodies should find binding and uniform definitions here.

Dirk Beuster, responsible for product safety at IFF in Hamburg and active in the DVRH (German Association of Fragrance Manufacturers), gave a lecture on „**Allergen labelling – a view from practice and background information**“. The labelling of contact allergens in cosmetic products has long been established in the EU. Dirk Beuster made it clear that substances labelled as allergens must be avoided by persons who have an allergy - but that the substances are harmless to most consumers.

In the further assessment of product safety, the industry assumes the evaluation of the individual ingredients and the exposure scenarios. Generous safety factors are applied at each step of the assessment, so that any risks to consumers are ultimately assessed to the best of their knowledge.



Finally, a new format at the SEPAWA Congress – with a **Panel Discussion**, the DGP highlighted current developments in the fragrance industry. Moderated by **Dr. Edison Diaz** and **Dr. Anneliese Wilsch-Irrgang**, perfumer **Marc vom Ende** (Symrise), **Dirk Beuster** and **Dr. Matthias Vey** discussed growing transparency requirements, possible future restrictions for perfumers and supply guarantee for natural and synthetic fragrances.

Dr. Vey informed that IFRA is developing a glossary in which raw materials for the fragrance industry are to be explained in a generally understandable way in order to better inform consumers. With regard to safety in use, **Dirk Beuster** considers natural and synthetic raw materials to be at least equal. And good news in closing: Even with ever new regulations, **Marc vom Ende** does not expect a restriction in creativity in perfumery – new technologies and new fragrances will continue to make fragrance compositions available in the future that will delight consumers.

The “fragrant” Thursday ended with the traditional **champagne Welcome Reception** for DGP members in the Fragrance Lounge.

DGP was strongly represented at the SEPAWA Congress 2018 with its Board of Directors and Advisory Board.

We would like to thank the organizers, especially **Michaela Reitmayer**, for the excellent support in the preparation - Fragrances will enliven the SEPAWA Congress even more in the future!

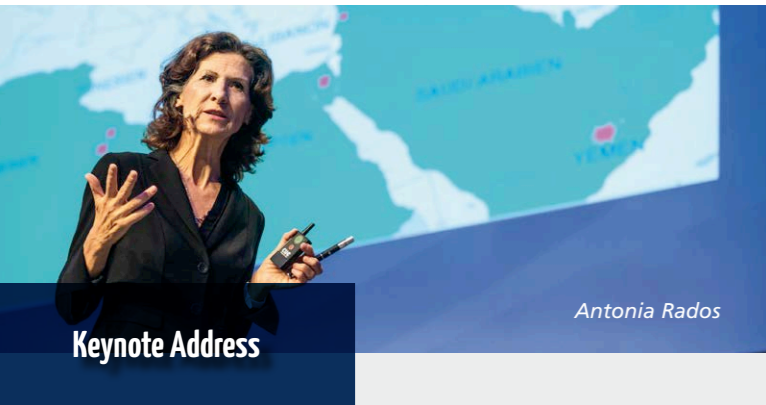


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Antonia Rados

Keynote Address

Turmoil in the Middle East – Consequences for Europe

In this year's key note address *Antonia Rados* showed that even 2500 years ago, the Middle East was the most important region in the world, according to the Greek historian Herodot. Today, the region is in the limelight yet again, especially for Europe, its neighboring continent. Refugee flows, chaos and terror show how the Middle East and the entire world order up to now collapses before our very eyes. But a new order is already being created and with it there are new opportunities for the global economy.



Gerriet Danz

Marketing Lecture

Utopia Creates Sales! Success – Beyond 8/15

Gerriet Danz explained how queer thinking can lead to innovative opportunities. Today, if you don't have visions, you should see an undertaker: There's no alternative to continuous innovation! Learn why business models must be regularly questioned, why market leaders are in danger of missing the train to the future and why brainstorming radical ideas is a must – and not just a nice option. Silicon Valley insider and innovation expert *Gerriet Danz* showed in his talk how you look beyond the currently possible and develop innovative business cases that turn the industry upside down. By making intelligent use of technologies, the future of personal and home care provides businesses with opportunities to create value greater than we can imagine today.

SEPAWA After Event



Once again, the SEPAWA After Event Team hosted an evening featuring Star Cuisine and first-class entertainment in an atmospheric ambience for its guests.



The over 800 guests enjoyed the menu created by the Estrel's Head Chef *Peter Griehl* and the Esperanto's Chef *Andreas Scholz*, supported by their team of almost 50 chefs. They accomplished a top culinary performance.



The next SEPAWA Congress takes place from **23 to 25 October 2019**

The *Roc Kidz Crew* together with *Dergin Tokmak*, who is the first German to be accepted into the circle of acrobats of the Cirque du Soleil enthused the audience with a grandiose stage performance of Break Dance.



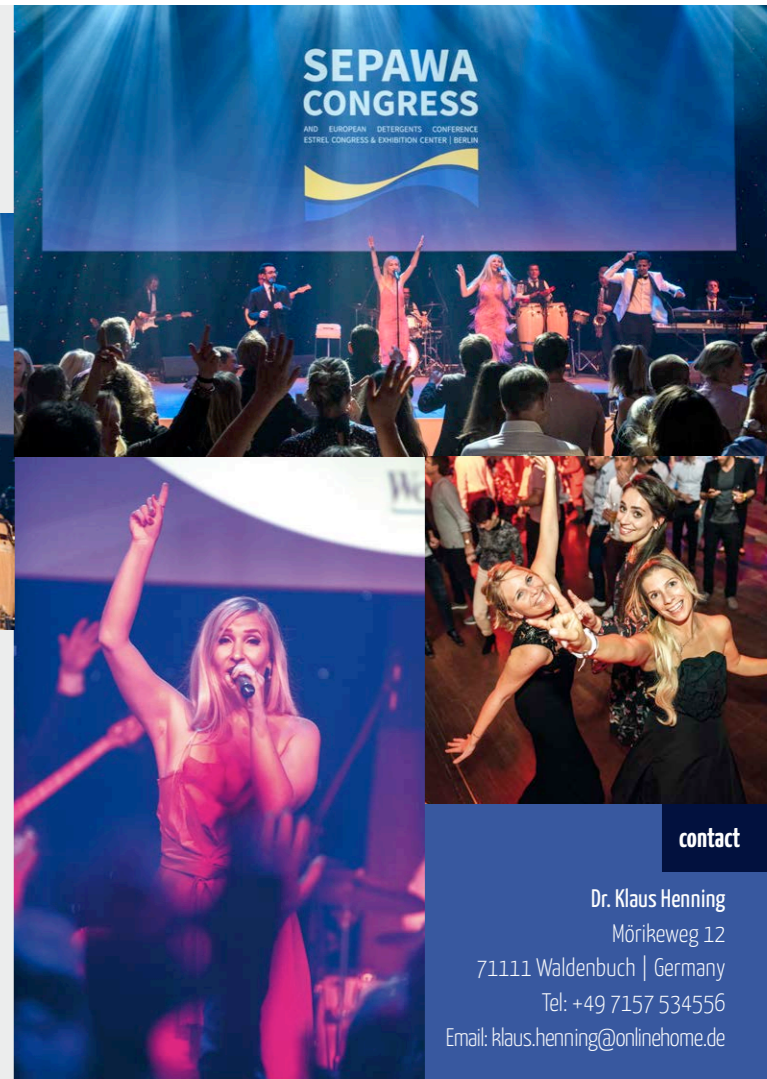
SMILE "The Hottest Band in Town!" put a smile on all faces with a perfect performance and familiar song titles. They played tunes from the big hits of the Funk and Soul Era, fiery Reggae rhythms, the all-time favorites of the golden age of Swing, the party groove of the Sixties and Seventies up to the top charts.

The dance floor was packed and until long into the night the recently acquired calories melted away.

See you all next year again.

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