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Rise Above the Maze of „Clean Beauty“ – RAHN-Cosmetic Actives‘ Approach

E. Besic Gyenge, S. Hettwer, B. Suter, B. Obermayer

Introduction

Extensive analysis of the beauty market and literature research on the definition of “clean beauty” or “clean products” reveals that this is a question of one’s own interpretation. Those definitions are still not subject to an established cosmetic regulation or label, so they may be misleading and misused. Nevertheless, “clean beauty” is an emerging need and the new star on the cosmetic beauty sky. RAHN is aware of this new star and therefore, we created our Clean Beauty Compass, for the development of the RAHN - Cosmetic Actives (RCA) which helps us navigate through the cosmetic world of “Clean Beauty cosmetics”.

The most important drivers are consumers and their newly gained consciousness of sustainability. The “clean beauty” movement evolves beyond recyclings and includes a more holistic view on personal responsibility, identity, surrounding and rights [1,2].

With the access to more information than ever before, consumers have been demanding greater transparency from the brands they buy from. Armed with a clearer picture of what’s behind the curtain, and awareness of how our culture of consumption has impacted the environment, the consumers of tomorrow are looking for the reconnection with nature, local communities and technologies to optimise the lifestyle and mitigate their environmental impact. Furthermore, the lines between natural, man-made, city and forest, home and office are blurring. Consumers of tomorrow are redefining their values and are looking for simple, flexible, multi-functional, safe and high-quality goods. According to Mintel, consumers are willing to pay more for products of a higher quality and they are concerned that the ingredients used in natural products are not sustainable [3]. Environmentally friendly practices are the best way for brands to represent values [4]. Consumers’ perspectives of brand morality have heightened. Additionally, quick wins such as banning plastic straws are no longer adequate. The actions must be more critical and salient. Brands need to be actively part of the solution and ECO-lution. There is an essential demand for trust and reliability. The RAHN-Cosmetic Actives’ Wind Rose gives an insight into our way of bringing everything under one roof.

RAHN-Cosmetic Actives’ Wind Rose

To elucidate our way of thinking and to give clear directional options to our customers including the latest demands of end consumer, we have created a clean beauty compass (Figure 1). The cardinal and ordinal directions facilitate the navigation through the cosmetic world of clean beauty and convey the trust, reliability and loyalty to our customers.



Fig. 1 RAHN's Wind Rose. Clean Beauty Compass showing cardinal and ordinal directions on the RAHN cosmetic sky.

RCA's cardinal directions

Quality – Nothing else matters

The quality of the finished cosmetic product is only as good as the raw materials used. This means that all our raw materials for the manufacturing of RAHN-Cosmetic Actives (RCA) conform to defined specifications to guarantee a stable level of quality over time. Wide ranges of different test methods such as physical, chemical, microbiological, and analytical (spectroscopy, chromatography) analysis is used to ensure this. The batches are always carefully examined during the manufacturing process and later regularly by our quality manager. The samples are stored for a long time to enable the regular review. The findings for each our RCA are summarised in our comprehensive Technical Data File (TDF) and stability documents.



We always strive to deliver the highest quality to our customers and to produce as little waste as possible. Through continuous analysis of the batches, the shelf-life is guaranteed.

Transparency – From Cradle to Gate

Transparency is key to building long-term trust and loyalty to our customers. Since the birth of the internet, our access to information has skyrocketed. Despite the information access and education, the trust in the “system” has declined globally. Consumers want to see proof, consistent results and they need products that stand for something. Since transparency has many faces, it is not easy to meet consumer needs and earn their trust. RCA were and are always produced with utmost care and knowledge about the supply chain. In 2018 we decided to bring this information proactively to our customers. Product life cycle (PLC) assessment (cradle-to-gate) has been used to systematically analyse the product's impact on nature and environment throughout the whole production process [5]. CO₂ produced is offset by different international climate projects [6]. RAHN endeavour to perform continuously PLC assessment to all its active ingredients if manageable.

Social Responsibility – Human first

RAHN works in long-term partnerships with suppliers and CRO's. Whenever possible, RAHN supports local companies and thus safeguards jobs. Our partners are continuously optimising their working processes to meet highest economical, legislative and ecological standards. Thanks to dedicated partnerships around the world, RAHN contributes to securing jobs in remote rural locations and thus also promotes the school education of children. Furthermore, RAHN supports social projects through its Cosmetic Actives developments: RAHN supports 7 climate projects worldwide and contributes to 16 out of 17 United Nations Sustainable Development Goals.

RAHN promotes education and knowledge sharing, regularly collaborates with universities, provides internships and supports the preparation of final theses by young academics.

Compliance – You can rely on us

RAHN recognises the importance of the Nagoya Protocol and took an active part in the public consultation on the Nagoya ordinance in Switzerland. RAHN-Cosmetic Actives comply with the Nagoya Protocol and the related Access and Benefit Sharing principles. We strive to protect the environment, to respect biodiversity and to preserve and restore natural habitats. The RAHN-Cosmetic Actives are made without the use of rare, protected or endangered plants. Additionally, RAHN recognises the guidelines for natural cosmetics and conforms to standards such as COSMOS, Natrue or ISO 16128. RAHN complies with global regulations that apply to the production and marketing of cosmetic active ingredients, such as ISO 9001:2015, Cosmetics GMP ISO 22716:2007 and international chemical and cosmetic regulations (EC 1223/2009, REACH, IECIC, IECSC, etc.).

RCA's cardinal directions

Development of RCA – In tune with nature and science

Cosmetic industry requires continuously innovative and authentic active ingredients. We at RAHN-Cosmetic Actives always strive to do comprehensive literature research in advance, bringing our knowledge up to date. The effectiveness of the active ingredients is analysed by *in-vitro*, *ex-vivo* and clinical tests. Cutting-edge science is our constant companion in elaboration of plausible modes of actions. RAHN-Cosmetic Actives always provide complete scientific dossiers for each

of our active. Our findings are not only presented in many cosmetic magazines and on scientific posters but also in peer-reviewed scientific journals such as the International Journal of Cosmetic Science.

Safety – Safer is better

Cosmetic products made available on the market must be safe for humans when they are used. Dependent on the respective country, forbidden and allowed materials for the manufacturing of cosmetic products are listed in the legislation. For this reason, it is necessary to determine and monitor the contents, the purity and all possible limit values of unavoidable impurities of the raw materials. Our safety data sheets and our toxicological package are very comprehensive, and it is always compliant to the newest chemical and cosmetic regulations.

Sustainability – The Future is greener

RAHN strives to protect the environment and exclusively uses renewable agricultural resources. An example is the use of plant-derived glycerin. For our production processes, as little solvent as possible is used and as little residue as possible is produced. We strive to apply different extraction methods such as supercritical CO₂ or aqueous extraction. Furthermore, we prioritise the use of green solvents. Whenever there is no reasonable natural alternative to palm oil derivatives, RAHN uses solvents from RSPO palm oil, Mass Balance quality. For our product preservation we prioritise the use of natural ingredients or, if needed, as little synthetic preservatives as possible. Our manufacturing processes consume, in general, low amounts of energy: The majority of the RAHN-Cosmetic Actives is produced without the use of heat. Furthermore, RAHN is aware of the threat that CO₂ emissions represent to the climate and has taken the necessary countermeasures. All our actives are readily or inherently biodegradable and are completely harmless for the water ecosystem.

Sourcing – Responsible and fair

Whenever possible, RAHN uses cultivated plants with short pathways from harvesting to manufacturing and favours cultivation in accordance with the Good Agricultural and Collection Practice guidelines. In addition to the means of plant cultivation, a high content of active substances is particularly important in order to achieve the best possible level of efficacy. RAHN strives to ensure the sustained growth of the crop plants and to restore natural habitats. RAHN prioritises long-term partnerships and collaborations with local manufacturers in Switzerland or neighbouring countries. More than 90 % of the RAHN-Cosmetic Actives are produced at production sites in Switzerland and Germany.

The implementation of theory into practice at RAHN-Cosmetic Actives department

RAHN's current portfolio of active ingredients follows the principles for clean cosmetic solutions. The following two examples demonstrate implementation of our values: LIFTONIN®-QI, which is our latest development, launched this year (2021) and AQUARICH®, which is a part of our existing portfolio. Detailed data regarding technical characteristics, toxicology, biodegradability, regulatory issues, performed studies and extensive background information may be found in our comprehensive documentation.

LIFTONIN®-QI – For a skin in harmony and balance

LIFTONIN®-QI is a water-based extract obtained from the fungus *Ganoderma lucidum* (Figure 2), which has been used for thousands of years in Traditional Chinese Medicine (TCM). We have selected a cultivation of this rare mushroom in a laboratory environment in Europe. This guarantees a consistently high quality and preserves the mushroom population in its natural environment. The cultivation is organic. *Ganoderma lucidum* is a saprobiont, which means it grows on dead wood. It converts cellulose into valuable amino acids, sugars and secondary metabolites. The product life cycle has been assessed and used to calculate the energy consumption from cultivation, harvesting, processing, manufacturing and transportation, ensuring transparency in our supply chain. The used energy has been converted in CO₂ equivalents and offset by supporting projects in Switzerland and China, covering 15 of the 17 UN sustainability goals [6].

LIFTONIN®-QI is able to reset the epigenetic clock to “youth time” by positively regulating epigenetic processes in the cells and leads to a relaxed facial expression.

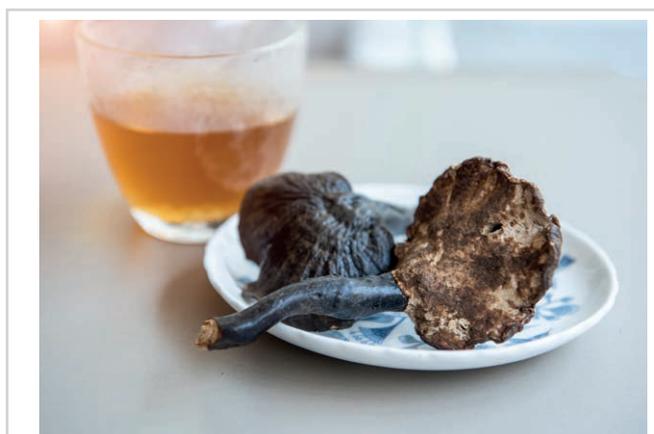


Fig. 2 *Ganoderma lucidum* is traditionally used for tea preparations.

AQUARICH® – Modern Hairchitect and Epidermal Moisture Ally

AQUARICH® is one of RAHN's most successful and best-known products. Already in the development phase, in the first decade of the new millennium, it was compliant with the Clean Beauty Compass. The emphasis was placed on natural and plant products with little to no preservatives. Furthermore, a comprehensive documentation and complete toxicology profile were routinely prepared. The *Avena strigosa* for AQUARICH® is cultivated locally only for RAHN's purposes. The black oats are very rare in their natural habitats and threatened by genetic erosion or even extinction. With the cultivation of the *Avena strigosa* we contribute to the renaissance of those rare species. Additionally, the manufacturing is done by our local partners in Switzerland ensuring short transportation ways. In light of a constant product modernization and adaption to a fast-changing environment, the product life cycle assessment has been done, re-evaluating our production and supply chain. The CO₂ emissions generated have been calculated and offset by means of contributions to two climate-friendly projects: a regional forest project in Switzerland and a wind energy project in Tangier, Morocco [6].

The intelligent blend of natural water-retaining substances in AQUARICH® is able to improve skin hydration and the struc-

tural architecture of dehydrated and stressed hair. Furthermore, we have performed additional experiments to show AQUARICH®'s efficacy in tensile strength and hair gloss after just one application and in different hair care formulations.

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Contact

Emina Besic Gyenge
emina.besic@rahn-group.com

Stefan Hettwer, Brigit Suter, Barbara Obermayer

RAHN AG
Dörflistrasse 120 8050 | Zurich | Switzerland
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