

ISSUE AUGUST 2015

COSMETOPOLITAN



COS-INSIDE

Latest news from
the RAHN group

LAB-NEWS

Sensory surprises

**AROUND
THE WORLD**

Goodbye noble
winter paleness –
hello sexy tan!

GOOD TO KNOW

Vegan cosmetics

RAHN

Your partner for excellence

Dear customer,



Welcome to the latest issue of Cosmetopolitan. We've put together articles on the following topics for you:

- New products in the RAHN portfolio
- Sensory surprises
- Goodbye noble winter paleness – hello sexy tan!
- Vegan cosmetics
- An encyclopaedia of cosmetics: “C” is for ...

Warm summer greetings and I hope you will enjoy this issue.

Sandra Gut
from your RAHN team

WHO IS NEW?

We'd like to say "welcome on board" to our new team members:



GAETANA FORGIONE

Function

Customer service

Division

Cosmetics

Joined

1 July 2015



DETLEF SEIDEL

Function

Manager Safety & Regulatory Affairs

Division

Cosmetics

Joined

1 July 2015



LIZA HAHN

Function

Customer Service

Division

Cosmetics

Joined

14 July 2015



We wish our new colleagues a good start and look forward to a successful and productive working relationship.

New ingredients

in our product range



AJINOMOTO

Amisoft ECS-22W is a natural and cost-effective amino acid-based surfactant.

DR. STRAETMANS

Sodium phytate and *Morus alba fruit extract* are components in **Dermofeel Enlight**, a natural whitening agent.

The O/W emulsifier **Dermofeel Easymuls Plus** is ideal for preparing sprayable emulsions of low viscosity.

Symbiomuls Rich is an effective and easy to use emulsifier blend (O/W) for preparing mainly highly viscous emulsions that enrich and nurture the skin.

EVONIK

Varisoft EQ100 is an innovative hair conditioning agent that has exceptional effects and sustainable characteristics.

IRA

Dermahyal is a gel prepared from cross-linked hyaluronic acid of biotechnical origin that counteracts loss of skin moisture and protects against the effects of harmful external agents.

Dermahyal Sun M is a variant that also contains a sun filter agent that improves the photostability of sunscreen products.

Dermahyal Vitaplus Factor has added vitamins for skin nutrition and to provide protection against oxidative stress.

LABORATOIRES EXPANSCIENCE

Pixalia improves skin that tends to be oily and develop blemishes while it is also effective against dry acne (age-related acne).

Actimp Powder is a natural active ingredient that fights the effects of photo- and chronoageing.

RAHN

HYDRACTIN LMF is an anti-ageing moisturiser that contains a combination of three forest plants: lichen, moss and fern.

REFORCYL®

contest

AND THE WINNER IS ...

2015 is a special year: for two reasons, RAHN is celebrating its 75th birthday, it is also the year of REFORCYL®, an active ingredient with seven-fold efficacy that significantly improves the appearance of mature skin.

At the beginning of this year, RAHN launched a competition concerning REFORCYL® and mature skin. We received numerous entries and we would like to thank everyone who took part. The lucky winner of the first prize – a dinner for her whole team – was Mme Christelle Palau of Cosmotec SA. The photo shows Roland Jermann of RAHN presenting her with a voucher for the prize at the in-cosmetics event in Barcelona.

Congratulations!



Christelle Palau, Roland Jermann and Barbara Obermayer

Formulation

Technology Seminar

RAHN UK held its first Formulation Technology Seminar in Leatherhead in June 2015, which proved to be a runaway success.

We at RAHN consider it important to pass on our knowledge and know-how and for this reason many theoretical and practical aspects were dealt with during the seminar.

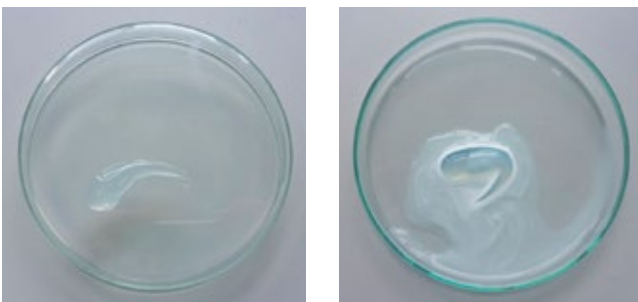
We would like to take this opportunity to thank everyone who attended and also express our gratitude for all the positive feedback we received. We are already looking forward to the next seminar!



Sensory surprises

It is often the case that things turn out to be not quite what they seem at first glance. Have you already heard of the gel-to-milk concept?

This involves the use of transparent oil-in-glycerin emulsions that turn into "milk" when combined with water. This effect is shown in the pictures below. The concept has been developed by the Sisterna laboratory and makes it possible to produce a stable "oil gel" with extremely fine droplet distribution. Basically, what is required is an emulsifying agent with a high HLB value; particularly suitable is the emulsifier Sisterna PS750-C (INCI: *sucrose palmitate*). A 2% concentration of the emulsifier is sufficient to emulsify 60% of the oil present.



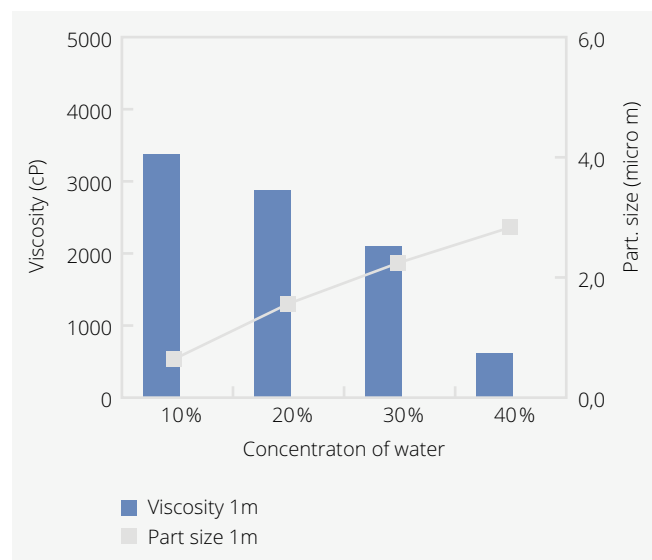
For a perfect result, the following parameters need to be followed.

1. Oil to glycerine ratio

The best outcome with regard to stability and transparency is achieved with an oil to glycerine ratio of 30 : 70 or 70 : 30. As a general rule, the higher the concentration of oil, the higher will be the viscosity of the resultant emulsion.

2. Ingredient evaluation

To guarantee that the oil gel has the necessary transparency, it is advisable to use glycerine 99%. It is best to avoid including water as far as possible to achieve the required distribution of fine droplets and stability. The greater the concentration of water in the system, the larger the droplets will become and the lower the viscosity will be. The following diagram illustrates this effect:



Another important factor that determines transparency is the oil employed. Transparency can be achieved using an oil which has a similar refractive index to Glycerin. The refractive index of glycerin is 1.472 but the refractive index varies considerably in

the case of the various oils. Good results can usually be achieved using natural oils. Less suitable are *isopropyl myristate* and *ethylhexyl palmitate* that give the emulsion a whitish colour. The table below provides an overview of ingredient suitability:

Ingredient	refr index	transparency
Glycerin	1,472	
Sunflower oil	1,474	good
Avocado oil	1,475	good
Penterythrityl tetracaprylate/tetracaprate	1,456	opaque
Caprylic/Capric Triglyceride	1,451	opaque
Ethylhexyl Palmitate	1,447	opaque
IPM	1,435	white
Dicaprylyl ether	1,433	white

3. Preparation

Last but not least, the quality of the resultant oil gel is determined to a considerable extent by the method used to prepare it; the following basic formula provides insight into the procedure required.

GEL-TO-MILK FACIAL CLEANSER

Ingredient	INCI-name	% w/w	Manufacturer
1 Glycerin (99%)	Glycerin	37.50	several
Sisterna PS750-C	Sucrose Palmitate	2.00	Sisterna B.V., NL
2 Sunflower Oil	Helianthus Annuus (Sunflower) Seed Oil	60.00	All Organic Trading GmbH, DE
Dermofeel Toco 70 non-GMO	Tocopherol; Helianthus Annuus (Sunflower) Seed Oil	0.20	Dr. Straetmans, DE
3 Parfum	Fragrance	0.30	several

- First predisperse the Sisterna PS750-C in glycerin and heat this mixture to 75°C.
- Blend the oil components and then heat this phase to 75°C.
- Next is the homogenisation phase: take care to add the oil phase gradually to the emulsifier / glycerin mixture. Considerable effort will be required to combine the two phases. The larger the volume of oil taken up by the system, the higher will be the viscosity and the greater will be the transparency of the result.
- Allow the mixture to cool to approx. 35°C before adding the fragrance. Ensure that you do not introduce too much air into the system by excessive stirring.

Gel-to-milk systems have a wide range of potential applications and can be used, for example, in rinse-off products, body scrubs and shaving gels.

It is also possible to dilute the oil concentrate with water (1 : 3) and to use this as a lotion for moist application.

Like to know more? Your RAHN team will be happy to provide further information.

Goodbye noble winter paleness – hello sexy tan!

Self-tanning products are as popular as ever... particularly with those forced to spend the summer in the office in front of the computer rather than on a beach lounge. Then there are those who worry about the way that excessive exposure to the sun can cause premature ageing of the skin and other negative effects. And, of course, those who have already got themselves a tan often like to retain the glow even when summer is long gone. An attractive and healthy way to achieve all this is to use “sun in a tube” products.

But when it comes to development, self-tanning products represent a continuing challenge in view of the numerous complaints made about them by consumers. So, how do we go about making our customers happy? Below is a short overview of the results of a market survey of consumer expectations / requirements with regard to self-tanning products, with particular reference to *dihydroxyacetone* (DHA).



EXPECTATIONS / REQUIREMENTS WITH REGARD TO TANNING PRODUCTS

- Moisturising effects
- Nurture the skin
- Pleasant consistency
- No oily residue
- Pleasant odour – no specific odour of self-tanner
- Rapidly absorbed
- Inexpensive
- Provide even tan
- Rapidly tan skin

COMPLAINTS ABOUT TANNING PRODUCTS

- Unpleasant odour
- Yellowish instead of brown tan
- Cause dry skin
- Cause pimples and skin blemishes
- Uneven cover / striations
- Stain clothing / towels / bed linen
- Burns on application to legs after shaving

THE COMPLAINTS IN DETAIL ...

Unpleasant odour

It is usually possible to cover or mask the characteristic odour of DHA using modern fragrances. The unpleasant odour only develops when the product is applied to skin. This is because here it undergoes a chemical reaction – the so-called Maillard reaction. The active agent DHA is a sugar molecule and reacts with the amino acids and proteins on the skin.

The concentration of proteins and amino acids influences the extent of the Maillard reaction, which means that some people will experience skin discolouration and an unpleasant smell when they use a DHA-based product while others will not. Another relevant factor is pH. DHA is most stable at a pH in the range 4–6. If products are stored for longer periods, pH can fall to 3; this results in the accelerated degradation of DHA and the formation of traces of formaldehyde.



It is also important to use additives that do not react with DHA. They should tolerate and not be unstable at low pH – this applies in particular to fragrance oils.

Yellowish tan

Brown is not always brown... unfortunately, products containing DHA do not always produce the same result when applied to skin. It is not completely clear why they give a brown tint to the skin of some people, a yellow result on the skin of many others and why on the skin of other people there is no effect whatsoever. It is possible that the individuals in question do not have a

sufficient concentration of the required proteins on their skin while perhaps the reaction temperature also plays a role. But these are factors that are not easy to influence.

Dry skin

A drawback of self-tanning products is that they can cause dry skin; this is because water is removed during the Maillard reaction. It is thus advisable to incorporate in the product a glycerin or a hydrating agent, such as HydraSynol DOI, the latter has the advantage that it intensifies the optical skin tanning effect, as the results of in vivo trials with and without DHA have demonstrated.



Pimples / Blemishes

Many self-tanning products are not suitable for use on oily / blemished skin. In products designed to be applied to the face in particular, comedogenic ingredients should not be used and the product should not leave an oily residue. As it is mostly young people who use tanning products, it would be desirable to develop a product that can be applied to skin with blemishes. A lactic acid buffer could, for example, be used in place of a citrate buffer.

Uneven cover / Streaking

An attempt to improve one's skin tint can rapidly turn into a genuine disaster. Although the skin may be nicely browned, the colouration can be patchy, uneven and unattractive. This is most commonly a result of uneven application of the product. It must also be borne in mind that in certain regions, such as the knees and elbows, there is a larger proportion of corneal skin so that these areas become more rapidly brown and exhibit a darker colouration. This can be remedied by first peeling the corresponding areas and thus removing any dead flakes of skin. To help users apply the product more evenly, it is a good idea to incorporate readily spreading lipids in the formulation.

Many users also apply the products to their hands and feet; they thus end up with yellow-brownish heels, soles and hand palms, an unappealing effect. This problem can be readily remedied by ensuring that the content of DHA is very low; unfortunately, this results in an unsatisfactory browning effect and can thus be the cause of complaints.

One solution might be to use a tinted self-tanner to ensure that there are no streaks after application.

Stain clothing / Towels / Bed linen

DHA promotes the desquamation of skin so that the tanned skin layers are more readily detached by drying, sweating and rubbing and can thus stain materials.

Burning after shaving

A burning sensation on application to the skin after shaving is due to the irritation caused by the low pH and the products of degradation of DHA formed during the tanning reaction.

Many manufacturers have thus begun to include erythrulose as well as dihydroxyacetone in their products. Erythrulose is chemically more stable and it is claimed that it provides for a more even, more natural-seeming skin tanning effect. At the same time, however, the erythrulose reaction is slower than that of DHA; in other words, the effect is not achieved in just a few hours but can take up to 1–2 days.

One attractive way to counter the effects that lead to complaints is to use the "DHA 50% Cyclosystem Complex" produced by IRA. This product contains the active ingredient in a form in which it is molecularly encapsulated.

In trials of its efficacy, it has been demonstrated that the tanning reaction is more rapid when DHA in a non-encapsulated variant is used, although there is no apparent difference in the tanning intensity achieved after the use of either variant. But the encapsulated variant has clear advantages over the pure DHA variants in that it results in more persistent and even browning of the skin and does not stain clothing, bed linen, towels etc. In addition, the more complex form of DHA is more stable over the long term than the free form.





So: simply unscrew a cap to get your summer look! Why not get your sunshine tint from a tube?

SUNSHINE TEINT

St	Substance	INCI Name USA	% w/w	Manufacturer
1	Water demin.	Water	69.45	several
	Glycerin 85%	Glycerin, Water	3.00	several
2	Keltrol CG-SFT	Xanthan Gum	0.25	CP Kelco, US
	Tego Carbomer 340 FD	Carbomer	0.20	Evonik Industries AG, DE
3	Dermofeel GSC	Glyceryl Stearate Citrate	2.00	Dr. Straetmans, DE
	Sisterna SP70-C	Sucrose Stearate	1.00	Sisterna B.V., NL
	Tego Alkanol 6855	Cetearyl Alcohol	2.00	Evonik Industries AG, DE
	HydraSynol DOI	Isosorbide Dicaprylate	2.00	Sytheon Ltd, US
	Tegosoft CT	Caprylic/Capric Triglyceride	12.00	Evonik Industries AG, DE
	Eldew SL-205	Isopropyl Lauroyl Sarcosinate	2.00	S.A. Ajinomoto Omnicem NV, BE
4	Verstatil PC	Phenoxyethanol, Caprylyl Glycol	1.00	Dr. Straetmans, DE
	L-Arginine solution 10 %	Water, Arginine	q.s.	Ajinomoto, JP
5	CC Dihydroxyacetone (DHA) 50 %	Dihydroxyacetone, Cyclodextrin	4.00	I.R.A. Istituto Ricerche Applicate S.R.L., IT
6	Sunshine	Fragrance	0.60	Aromatic Flavours & Fragrances Europe Ltd., GB

Vegan

cosmetics

People today are much more health-conscious when it comes to nutrition than was once the case; in fact we have seen a growing trend towards the adoption of a vegetarian lifestyle over past years. But there is also a new buzzword making the rounds: veganism. In contrast with vegetarians, vegans eat no animal-produced foodstuffs whatsoever, including eggs, milk and honey, for instance. This is an attitude which is spreading throughout society and is beginning to impact on the world of cosmetics.

The result is an increased demand for cosmetics that contain no animal-derived ingredients and have not been tested on animals. Ethical considerations often play a major role in determining what consumers purchase. They are increasingly exhibiting a desire to use body care products that are not associated with cruelty to animals. In the past lipstick was made using bovine fat, toothpaste contained bone meal and body lotions were prepared using placenta material derived from the uterus of slaughtered animals. It all sounds pretty repellent, but such in-

gredients were frequently present in standard cosmetic products. Manufacturers have already found effective alternatives to most animal-based ingredients and have, for example, replaced beeswax with carnauba wax and keratin with soya protein in shampoos. In the perfume sector, animal secretions such as ambergris from the sperm whale and musk from the deer have been replaced by essential oils.

But what does all this mean for the developers of cosmetics? It is often assumed that natural cosmetics can be seen as equivalent to vegan cosmetics and vice versa. While it is true that natural cosmetics are made only from plant-based ingredients, the applicable regulations also permit the use of materials produced by living animals, such as milk, honey and beeswax. It is different in the case of vegan cosmetics (identified on the label); in these, the use of any animal-related ingredients is prohibited. Synthetic ingredients, such as carbopols, can be employed assuming that the animal welfare associations have certified that these have not been tested on animals.



 TRUST IS GOOD BUT CHECKING IS BETTER: AN OVERVIEW OF LOGOS ...

The two logos most frequently used by the cosmetics industry are:



Rabbit with protective hand

Symbol of: The German natural cosmetics association Internationale Hersteller-
verband gegen Tierversuche in der Kosmetik e.V. (IHTK)

Cosmetics that have this symbol on the label conform to the guidelines of the German animal welfare association. The logo means that no animal testing was used during the development and manufacture of the product.



Leaping Bunny

Symbol of: The Humane Cosmetics Standard (HCS)

An internationally recognised quality seal that indicates that a product is animal cruelty-free. The logo can only be used on products that conform to the requirements of the Humane Cosmetics Standard.

The following logos are currently mainly used in the foodstuffs sector but may in future more frequently appear on cosmetic products.



The Vegan Flower

Symbol of: The Vegan Society (UK)

Used on products that contain no animal ingredients or additives. Animal trials are also prohibited. Packaging does not necessarily have to be vegan while the use of GMOs is allowed.



V-Label

Symbol of: The European Vegetarian Union (EVU)

May only be used on products that contain no animal ingredients, additives or GMOs and have not been tested on animals. There are several variant forms of this logo. The product is vegan only if the logo contains the word "Vegan".



Vegan-Label

Symbol of: The Vegane Gesellschaft Deutschland e.V.

Products that contain no animal ingredients or excipients; use of GMOs is also prohibited.

It is often the case that cosmetic products are simply labelled with the word "Vegan". But be careful; it is possible that such products may have been tested on animals in the past.



GOOD NEWS ...

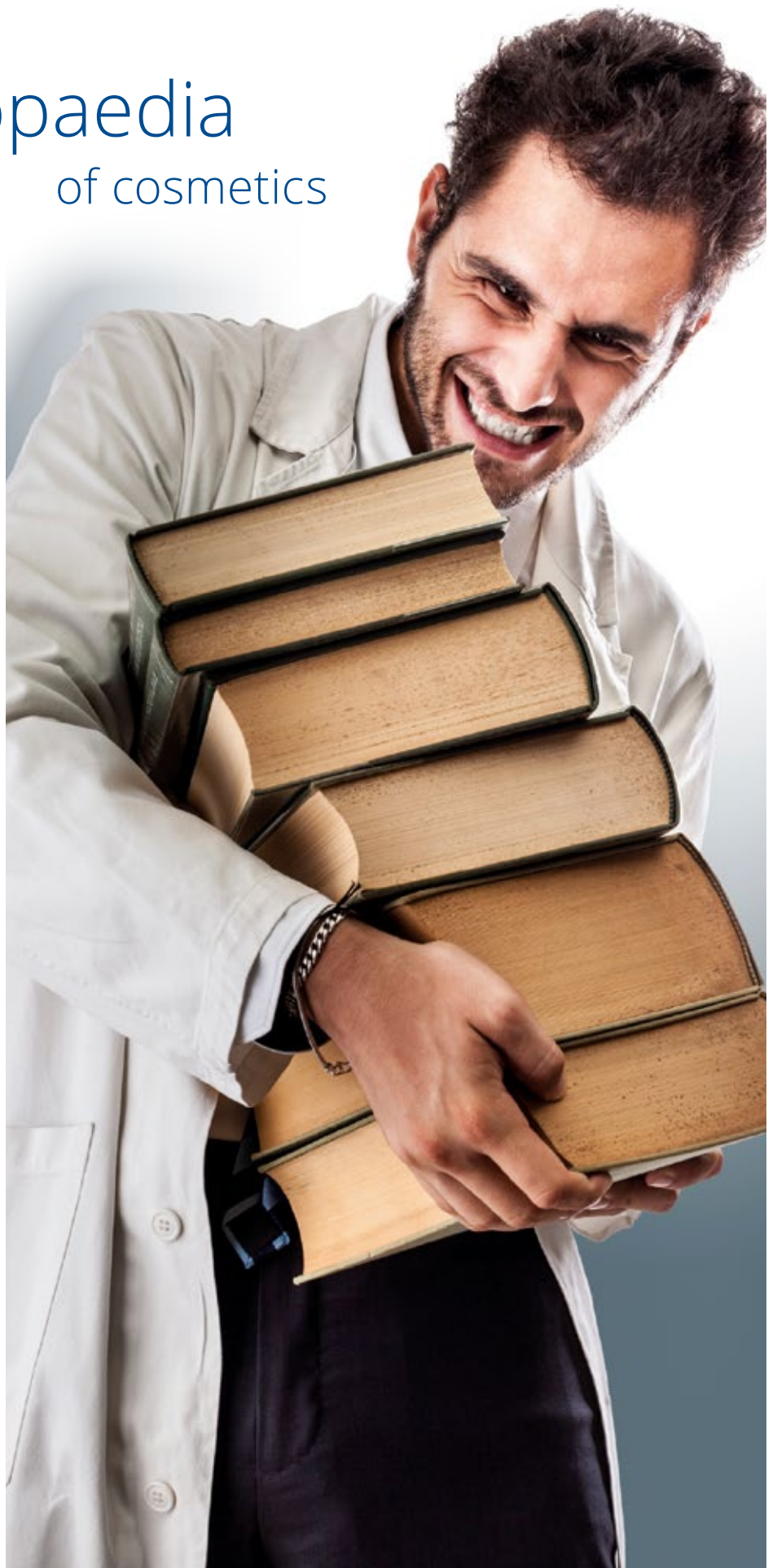
RAHN supply many vegan compatible ingredients.

Ask your RAHN team for more information.

An encyclopaedia of cosmetics

C is for ...

- ... Carbomer
- ... Carnauba wax
- ... Carrageenan
- ... Cellulose
- ... Challenge test
- ... Chelating agents
- ... Co-emulsifiers
- ... Coenzymes
- ... COLIPA
- ... Couperose



Carbomer

Carbomers (also known as polyacrylic acid polymers) are chemical gelling agents. They are supplied in the form of a white powder or aqueous solution and are used for gelling and as stabilizers in the cosmetics industry.

Carnauba wax

A yellowish waxy substance obtained from the wax palm (*Copernicia cerifera* C. Martius). It has a melting point of approx. 85°C and because of its hardness it is often used in lipstick formulations and as a substitute for beeswax.

Carrageenan

This is a long-chained polysaccharide that occurs in the cells of various red algae. There are different types known as kappa, iota and lambda carrageenan that differ in terms of chemical structure and have different characteristics. Carrageenans are used to stabilise emulsions and to improve the organoleptic properties of products.

Cellulose

Cellulose is the main component of plant cell walls. It is supplied in the form of a fine grained, white powder with a neutral odour. Microcrystalline cellulose is used in cosmetics; this is produced by means of hydrolysis using hydrochloric acid, comminution and spray drying. Cellulose has absorbent, emulsion-stabilising, viscosity-regulating and swelling properties.

Challenge test

In a challenge test, a formulation is deliberately inoculated with bacteria, yeasts and fungi and the preservative effects of the formulation on these are observed. The result is positive if the level of introduced microorganisms falls by the required percentage within a specified time period. The test is used to confirm the product's minimum shelf life and period after opening (PAO).

Chelating agents

Also known as complexing agents. They prevent the oxidation of substances catalysed by metal traces in cosmetic formulations. Traces of metals can have negative effects on a formulation by causing, for example, changes to colour or odour. Chelating agents that are frequently used include EDTA, phytic acid, citric acid and sodium citrate.

Co-emulsifier

Emulsifying agents are commonly used in combination. In an emulsion, a co-emulsifier promotes its formation and stabilisation.

Coenzymes

Perhaps the most widely known coenzyme is ubiquinol, also called coenzyme Q10. This is a substance that is endogenous to the human body. Because of its antioxidative effects, it is used in anti-ageing products. It stimulates the biological functions of the skin and protects the skin against damaging environmental effects.

COLIPA

This is the abbreviation for the "Comité de Liaison des Associations Européennes de l'Industrie de la Parfumerie, des Produits Cosmétiques et de Toilette", which is the umbrella organisation of the European cosmetics sector. This was founded in Brussels in 1962 and represents the interests of the European cosmetics, body care product and perfume industries.

Couperose

This is an inflammatory skin disorder in which the skin becomes diffused with visible tiny blue-reddish veins. It tends to be most severe on the cheeks and around the nose. The causes of couperose include genetic predisposition, sun exposure, high blood pressure and excessive alcohol consumption.

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