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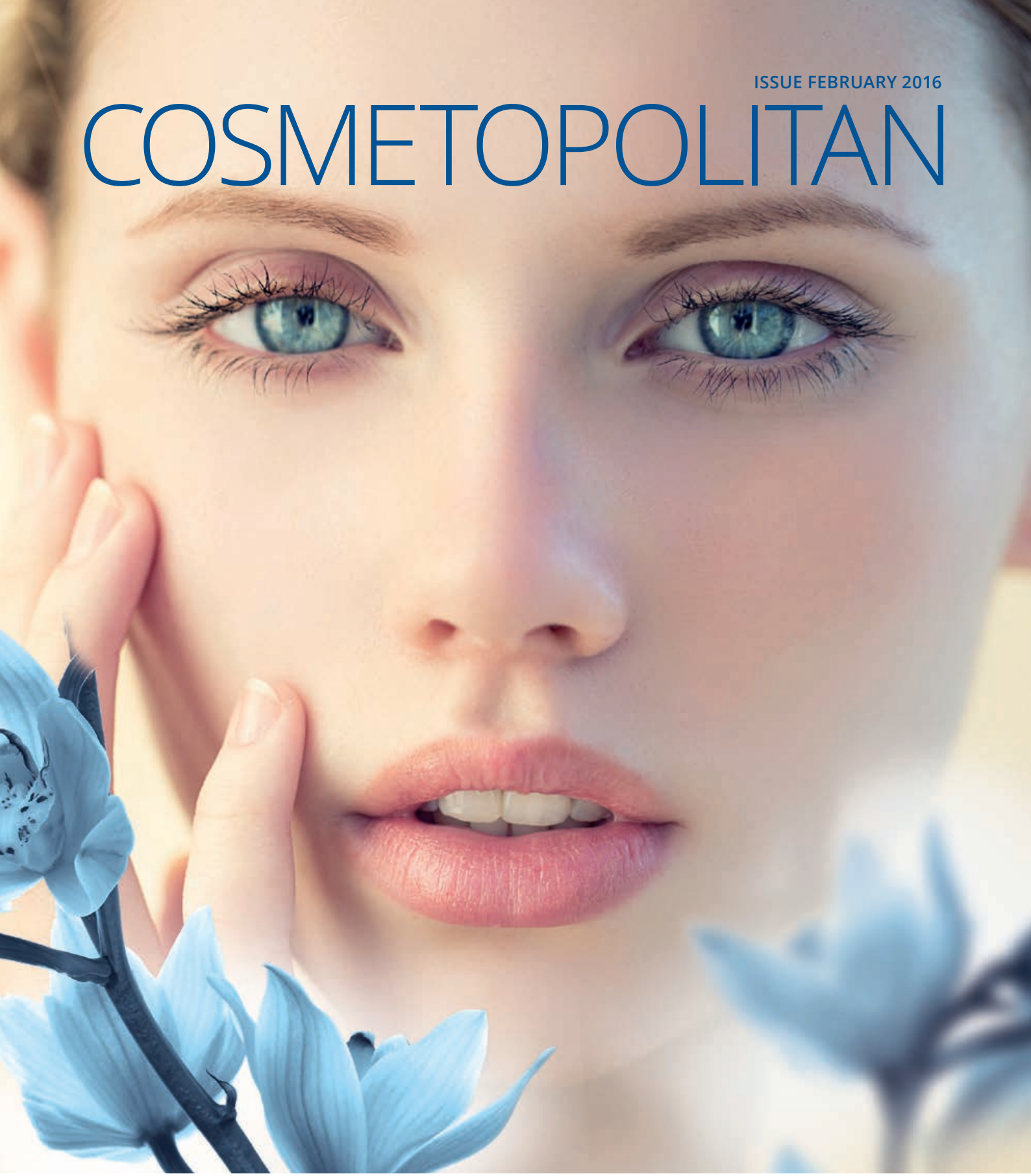
COSMETOPOLITAN



RAHN
Your partner for excellence

Dear Readers,

Dreams and visions guide us along our path in life. They drive us forwards and give us the necessary strength to doggedly pursue our goals. Starting a project may be easy but you need strength to persevere. We would like to thank you for placing your trust in our company and for the pleasant working relationship we have enjoyed with you. We look forward to continuing our exciting and successful adventure with you in 2016.

I hope you will enjoy reading this issue of Cosmetopolitan!

Sandra Gut
from your RAHN team

WHO
IS NEW?

A very warm welcome to the new colleagues joining our team:

MARION NÄGELI
Function
Customer Service Cosmetics
Joined
1 November 2015

JASMINE ENG
Function
Customer Service Cosmetics
Joined
1 January 2016

We hope our new colleagues will settle in quickly and look forward to developing a strong and productive working relationship.

First technical seminar in

Ticino / Italian-speaking area of Switzerland

In October 2015, we held the first technical seminar for our customers in Lugano, Ticino.

The participants were given a basic introduction to the structure of emulsions and shown how they can be successfully preserved. The training included a practical session in which the customers were able to use their senses to analyse the various formulations. The positive feedback we received from all participants has encouraged us to offer more technical seminars in future.

Colour-stable formulations

with plant extracts rich in phenols

EFFECTIVE SUBSTANCES CAN CAUSE COLOURATION

Cosmetic ingredients containing a high proportion of active phenol substances can lead to colour changes in cosmetic formulations over time.

These develop due to the effect of light and oxygen, or through interaction with other components of the formulation. This aspect needs to be taken into account when developing products, since excessive colour changes can have an adverse effect on the acceptance of the end product.

The anti-ageing ingredient PROTEOLEA®, for example, contains extracts of olive leaves and the fruit of the Chinese jujube. The phenolic compounds in the plant extracts, such as oleuropein, can change colour over time and become darker.

Initial colouration of an emulsion

The colour is dependent on the concentration of the active substance used. After the incorporation of different concentrations of PROTEOLEA® the test cream was assessed visually. When a concentration of up to 1% was used in a white O/W emulsion, this showed no fundamental colouration, at 2% and 3% the colouration was perceptible, and with concentrations of 4% and 5% there was considerable colouration (Figure 1).

Figure 1: Visual assessment of the colouration of a test emulsion with increasing concentrations of active substance. ≤ 1% PROTEOLEA®: imperceptible colouration; 2% and 3% PROTEOLEA®: noticeable colouration; ≥ 4% considerable colouration.

Different concentrations used were measured using the LUCI 100 measuring device. From these values, the colour difference ΔE was calculated (Figure 2). A trained observer can see a difference of 1 unit, while the lay person only perceives a difference with 2.5 or more units. A ΔE of between 2 and 4 units is generally perceived, but acceptable. More than 4 units normally corresponds to a considerable difference [1].

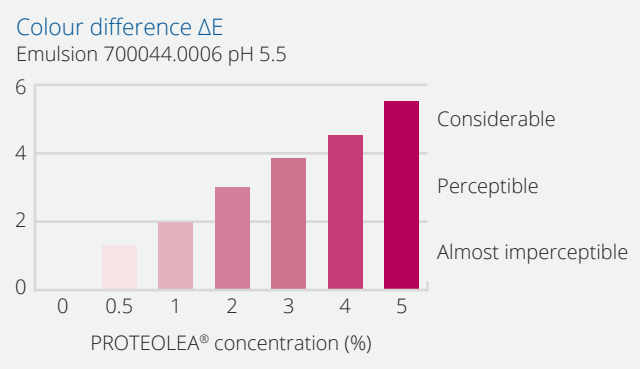


Figure 2: Quantitative assessment of colouration (colour difference ΔE) of a test emulsion with increasing concentrations of active substance. ≤ 1% PROTEOLEA®: imperceptible colouration; 2% and 3% PROTEOLEA®: noticeable colouration; ≥ 4% PROTEOLEA®: considerable colouration.

The pH value also has an influence on the colour intensity: the lower the pH value is set, the lighter the colour of the formulation (Figure 3).

Figure 3: With a lower pH (left) the initial colouration is less pronounced.

Maturation and colour changes of an emulsion over time

As described in the introduction, formulations containing plant extracts change over time: they have a tendency to become darker in colour. The use of auxiliary products can slow this natural process down, or even entirely prevent it.

Ascorbic acid is frequently used as an antioxidant in the food industry, but experience in the cosmetics laboratory has shown that the use of ascorbic acid can have a negative effect. This is because this acid is oxidised, thus creating the yellow breakdown product dehydroascorbic acid.

This causes a change in the colour shade of an emulsion, turning it yellow rather than brown.

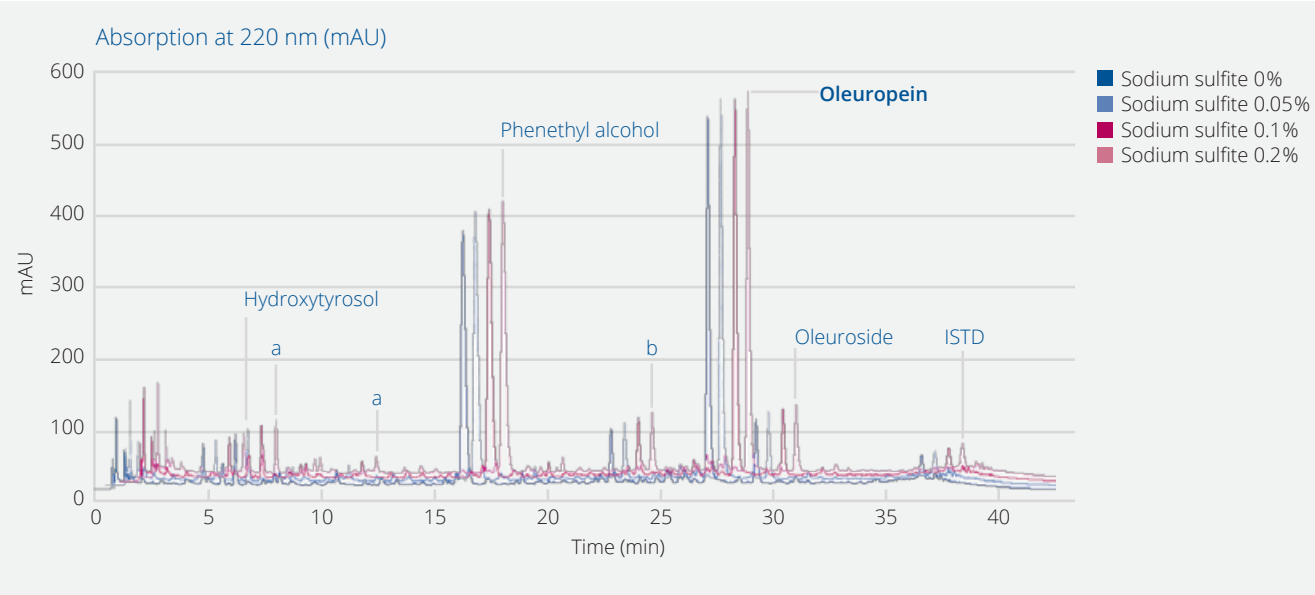
During the development of PROTEOLEA® it became apparent that moderate use makes sense, so PROTEOLEA® already contains a small concentration of ascorbic acid.

Another antioxidant that is widespread in the food industry is sodium sulfite (INCI: Sodium Sulfite). This is declared as food additive E 221, is approved for cosmetic use [2] and has been assessed as being safe [3].

To document the colour changes in a test emulsion with PROTEOLEA®, we selected a usage concentration of 3%. An emulsion with and without sodium sulfite was stored for 9 months, after which the colour was measured. A test cream without PROTEOLEA® served as a zero value. The test cream with 3% PROTEOLEA® displayed a colour difference ΔE of 3.81 compared to the control cream without PROTEOLEA®. When the test cream was measured again after being stored for 9 months, the colour difference ΔE was 5.93 without sodium sulfite and 3.92 with sodium sulfite (Figure 4). When 0.2% sodium sulfite was used, there was thus no colour change over nine months (Figure 4). These measurements showed that an end formulation with 3% PROTEOLEA® and 0.2% sodium sulfite does not become darker – discolouration of the end product is prevented.

Figure 4: Colouration and maturation. Top right: An emulsion with 3% active substance displays a slight initial colouration. **Top left:** Emulsion without active substance (reference); **Bottom left:** Successful colour stabilisation after addition of 0.05–0.2% sodium sulphite, stored for 9 months; **Bottom right:** Discolouration without addition of sodium sulphite, stored for 9 months.

An HPLC diagram provides us with information as to whether the composition of PROTEOLEA® is changed by the addition of sodium sulfite. Only marginal changes in the composition are apparent (Figure 5). It can thus be assumed that sodium sulfite does not adversely affect the effectiveness of PROTEOLEA®.



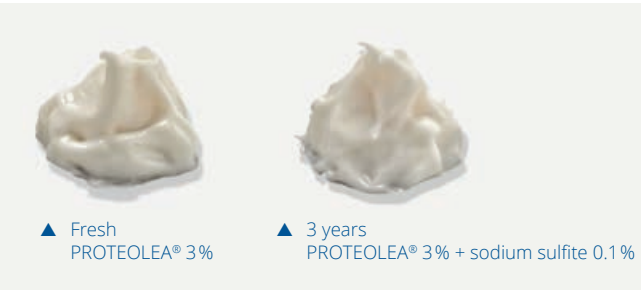
a: could be oleoside or secologanoside;
b: a flavone with one sugar unit (e.g. kaempferol 3-glucoside);
ISTD: internal standard.

Figure 5: Sodium sulphite has no influence on the content spectrum of the active substance. HPLC fingerprints after three months' incubation with different concentrations of sodium sulphite show no changes.

Recommendations and findings

Active substances that are rich in phenols, such as PROTEOLEA®, colour an emulsion and this colour can become stronger during storage. We offer the following tips to prevent this discolouration:

- The lower the pH is set, the lighter the end formulation will be.
- An emulsion with a usage concentration of ≤ 1 % is perceived as white by the human eye, ≤ 3 % is perceived as ivory-coloured and ≥ 4 % as brownish.
- With higher usage concentrations, we recommend choosing appropriate packaging: cream looks distinctly lighter in colour when taken from a dispenser or tube than it does when taken from a pot.
- To preserve the initial colour of the emulsion throughout the period of storage and use, the use of 0.05–0.2 % sodium sulfite is advisable (Figure 6). This should be dissolved in the water phase at the start of production of the emulsion.
- A complexing agent can also play a supporting role, such as disodium EDTA.
- Heating PROTEOLEA® purely as an active substance or a formulation with PROTEOLEA® should generally be avoided.



▲ Fresh PROTEOLEA® 3 %

▲ 3 years PROTEOLEA® 3 % + sodium sulfite 0.1 %

Figure 6: Sodium sulphite (0.05–0.2 %) is highly effective in preventing maturation and discolouration. Even after being stored for three years, a test emulsion displayed the same light colour as on the first day.

Our new guide formulation – colour-stable and effective!

This light emulsion is suitable as an anti-ageing formulation for daily facial care. Further information about PROTEOLEA® can be found in the following short portrait.

Disengage from Age

St	Substance	INCI name EU	% w/w	Manufacturer
1	Water demin.	Water	67.00	several
	Sodium Sulfite	Sodium Sulfite	0.10	several
	Dermosoft OMP	Methylpropanediol, Caprylyl Glycol, Phenylpropanol	4.00	Dr. Straetmans, DE
2	Tego Carbomer 340 FD	Carbomer	0.15	Evonik Industries AG, DE
3	Sisterna SP70-C	Sucrose Stearate	0.50	Sisterna B.V., NL
	Tegosoft CT	Caprylic/Capric Triglyceride	12.00	Evonik Industries AG, DE
	Keltrol CG-SFT	Xanthan Gum	0.25	CP Kelco, US
	Dermofeel GSC	Glyceryl Stearate Citrate	3.00	Dr. Straetmans, DE
	Dermofeel Toco 50 non-gmo	Tocopherol, Helianthus Annuus Seed Oil	0.10	Dr. Straetmans, DE
	Dermofeel BGC	Butylene Glycol Dicaprylate/Dicaprate	4.00	Dr. Straetmans, DE
	Tegosoft DEC	Diethylhexyl Carbonate	3.00	Evonik Industries AG, DE
	Tego Alkanol 6855	Cetearyl Alcohol	2.00	Evonik Industries AG, DE
4	PROTEOLEA®	Glycerin, Water, Levan, Decyl Glucoside, Olea Europaea (Olive) Leaf Extract, Phenethyl Alcohol, Zizyphus Jujuba Seed Extract, Citric Acid, Ascorbic Acid	3.00	RAHN AG, CH
5	White Poetry	Fragrance	0.90	Aromatic Flavours & Fragrances Europe Ltd., GB

PROTEOLEA® – SHORT PORTRAIT

Airborne pollutants, stress or sunlight lead to an accumulation of harmful cellular by-products such as oxidised proteins or advanced glycation end products. Olive leaf extract with oleuropein strengthens the proteasomes to ensure the optimal breakdown/recycling of these by-products. Jujube extract supports the skin's antioxidative protection system and prevents the formation of oxidised cellular waste. Levan creates a firming film on the surface of the skin.

- Detoxifying
  Activates the proteasomes that lose their function over time, and ensures optimal cell recycling
- Anti-glycation
  Reduces the increase in advanced glycation end products (AGEs)
- Anti-pollution
  Strengthens the skin's antioxidative protection system and prevents the formation of oxidised cellular waste caused by airborne pollutants, stress or sunlight
- Anti-ageing
  Rejuvenates wrinkles around the eyes by 6 years in 4 weeks, and improves skin roughness, moisture and skin renewal
- Inspired by Nobel Prize-winning biology

Areas of application:
Detoxifying skin care, anti-pollution, anti-glycation, anti-stress, anti-fatigue care, anti-ageing, eye care, skin rejuvenation, diabetic skin

1. Has M. Color Management: Current Practice and The Adoption of a New Standard. *INTERNATIONAL COLOR CONSORTIUM* 1995.

2. CosIng, the European Commission database with information on cosmetic substances and ingredients In.

3. Nair B, Elmore AR, Cosmetic Ingredients Review Expert P. Final report on the safety assessment of sodium sulfite, potassium sulfite, ammonium sulfite, sodium bisulfite, ammonium bisulfite, sodium metabisulfite and potassium metabisulfite. *Int J Toxicol 2003,22 Suppl 2:63-88.*

Cosmetics
in Asia

A pale complexion is considered an important beauty feature in Far Eastern countries. A skin tanned by the sun indicates poverty and hard physical outdoor work. As there are very few Asian women who are naturally endowed with the pale complexion considered ideal, many women use skin-lightening cosmetics.

Asian and European skin in comparison

Asian skin generally appears smooth and flawless which is why Europeans often believe it is problem-free. However, the skin of Asians has a slight tendency towards acne and other irritations and is more sensitive to exogenous chemicals (= external influences). This is due to a thinner cornea. A healthy complexion is therefore associated with an intact, smooth and flexible cornea. Asian skin has lower levels of Natural Moisturising Factor (NMF) than European skin. This defines a group of water-binding substances that are components of the horny cells and have an effect on the moisture content of the skin.

There are similarities between Asian and European skin, for example the transepidermal water loss (TEWL). This is defined as a difference in moisture concentration between the innermost moisture-retaining cell layer of the stratum corneum and the moisture-dispensing cells of the stratum granulosum. The difference in concentration leads to a continuous and natural release of stored water to the surrounding tissue.

The ceramide levels of the two skin types are also comparable. The ceramides are amides of the sphingosine (= a simple, unsaturated amino alcohol consisting of 18 carbon atoms) or its hydration product with long-chain fatty acids. These are non-ionic, low-level hydrophilic amphiphilic compounds. The horny layer contains approx. 18% of ceramides and these are very important for the proper functioning of the skin barrier.

There has been a substantial increase in the demand for cosmetic products amongst Asian women in recent years and a rise in their purchasing power. This has led to an enormous growth in the variety of products available. Nowadays, Asian women are very brand conscious and not particularly price-sensitive. They certainly use a larger range of daily body care products than European women. Asian women use around 16 to 18 products a day and European women on the other hand only five to six products daily.

The following steps show an example of a holistic whitening concept:

1st step: Thorough cleansing
2nd step: Whitening (eye area)
3rd step: Whitening (face, body)
4th step: Sun protection
5th step: Whitening make-up

Requirements of cosmetics in Asia

The Asian climate has a large impact on cosmetic formulation. Japan, Korea and China all have warm, humid climates. The summer months are hot (between 30 and 40°C) and humidity levels can climb to 90% at this time. Due to the high temperatures and humidity levels, it is not possible to use the same formulations in both Asia and Europe. The Asian formulations need to be adapted to the tropical climate and withstand strong exposure to the sun. The warm, humid climate in East Asia makes people sweat profusely. Sweating means the skin loses substances that make it soft and supple, for example certain amino acids, urea, glycerine and hyaluronic acid. The heat stimulates sebum production which makes the skin appear greasy and leads to blemishes. A skincare product adapted to the Asian climate should therefore be light and low in oil, avoid leaving a film on the skin, have an absorbent effect and contain substances that the skin loses during sweating. These are mainly moisture-dispensing raw materials and active substances such as glycerine, butylene glycol, hyaluronic acid and amino acid compounds.

Summary

The Asian market requires products with gentle, calming, anti-inflammatory and antibacterial effects. A w/o emulsion would be too rich for the Asian market and give the face an undesirable shine. Light silicone oils are often worked into formulations and these give the skin a pleasant, velvety feel without leaving an oily residue, and still have beneficial effects. As a silicone substitute or an addition, powder raw materials are incorporated that give the skin a soft feel. Care must be taken to ensure that a product's texture has moisturising properties and results in a pleasant, non-greasy feel to the skin. Suitable compounds for the Asian market are o/w emulsions, gels, gel creams and lotions for example. To achieve the desired effect of a lightened skin tone and an even complexion, effective skin-whitening substances are incorporated into these structures.

RAHN offers the following raw materials for skin lightening/whitening:

PROFILE: ASYNTRA SL

INCI	Caprylic/Capric Triglycerides, Hexylresorcinol, Ethyl Linoleate
Concentration used	1.5 to 4%
Solubility	oil soluble
Benefits	• effective skin lightening • even skin complexion

PROFILE: CELLACTIVE®-WHITE

INCI	Water, Alcohol denat., Niacinamide, Zinc PCA, Chlorella Vulgaris/Lupinus Albus Protein Ferment, Nasturtium Officinale Flower/Leaf Extract
Concentration used	3–10%
Solubility	water soluble
Benefits	• effective skin lightening with high skin tolerance • naturally lighter complexion • evenly lightened skin complexion • even pigment dispersion

PROFILE: ILLUMISCIN®

INCI	Glycerin, Water, Olea Europaea (Olive) Leaf Extract, Ascorbyl Glucoside, Zinc PCA
Concentration used	2–6%
Solubility	water soluble
Benefits	• effective protection through inhibition of the pigments, melanin and lipofuscin, involved in the formation of age spots • quick and successful reduction in surface area of age spots after only 14 days of use • adjustment of skin tone by reducing contour definition of age spots

PROFILE: SYNOVEA HR

INCI	Hexylresorcinol
Concentration used	0.5 to 1%
Solubility	oil soluble
Benefits	• effective skin lightening • even skin complexion • suitable for problems with hyperpigmentation of ethnic, Asian and Caucasian skin

Interested? Ask your RAHN team for more information.

Spots – practically everyone
has them but nobody wants them …

Acne is one of the most commonly occurring skin diseases. It is a chronic inflammatory disease of the sebaceous glands and hair follicles and mainly occurs where there are a large number of sebaceous glands such as on the face, neck, chest/cleavage, on the back, upper arms and in the shoulder area.

Almost every teenager has discovered spots and blackheads at some point. Acne mainly occurs in young people from the age of 11 onwards. It usually subsides by the age of 20. However, certain forms of acne can last well into adulthood or even occur for the first time over the age of 25.

Acne is distinguished according to its severity:

- mild acne with comedones, some papules and pustules.
- moderate acne with comedones, a few or many papules and pustules, a few nodules
- severe acne with many papules and pustules and nodules

There are also many different forms of acne. Each form is characterised by different changes to the skin. The various forms of acne will be briefly described and explained below.

Acne vulgaris

This is the classic form of acne caused by hormone increases during puberty which almost everyone has had to struggle with in their lives. The typical course of acne vulgaris is marked by frequently occurring blackheads, also called comedones, which can become inflamed and develop into pustules. A blackhead appears when the pores become clogged due to secretion of excess sebum. These usually appear as unsightly, dark spots. These in turn occur through the oxidation of the stored pigment melanin.

Acne comedonica

Acne comedonica is often described as a subtype of acne vulgaris. The term "comedonica" is derived from the Latin "comedere" which means "consume", "eat up". Which is also where the word "comedone", another word for blackhead comes from. Acne comedonica is the lightest form of acne. The forehead, nose and chin – the so-called T-zone – are the main areas affected. There is a distinction to be made between whiteheads and blackheads. In contrast to blackheads (see also acne vulgaris), the whiteheads are closed so that no oxidation can take place and no discolouring is possible.

Hidradenitis suppurativa

This is often described as the worst form of acne. It refers to inflammation of the hair follicles. Palpable nodules and swellings form which look like enlarged blackheads. While the normal form of acne in puberty mainly occurs on the face, hidradenitis suppurativa can affect other parts of the body such as the underarms and genital area. In extreme cases, nasty abscesses form which can be accompanied by severe pain. If these nodules become inflamed, they can grow to the size of a tennis ball. Women between the ages of 20 and 30 are often affected.

Cystic acne

Cystic acne is often less visible than other forms of acne yet often more painful as the inflammation mainly lies deep below the surface of the skin. It occurs when oil ducts become infected.

Acne conglobata

This form of acne is associated with numerous comedones, inflamed abscesses and deep scars in the skin. It usually occurs in men on the back and around the neck. In extreme cases, it presents in the form of abscesses underneath the spot which have to be removed by a doctor.

Acne fulminans

Acne fulminans, also called acne maligna, is a rather rare type of acne. Apart from the skin, it may also affect the joints. Acute phases are often accompanied by a high fever. Large areas of skin can be afflicted with painful ulcers.

Acne tarda

You do not have to be a teenager in the middle of puberty to suffer from acne. Acne tarda is a from of late onset acne which mainly occurs between the ages of 30 and 45 and predominantly affects women. It usually presents with spots on the chin and cheeks. The skin produces too much sebum clogging the pores and causing unsightly reddening and inflammation deep under the surface of the skin. Hormonal fluctuations during the monthly periods or in the menopause as well as stress or psychological stress usually trigger acne tarda.

Treatment

Moderate to severe acne often requires medical treatment by a doctor. Light acne on the other hand can usually be treated without medication. We offer a variety of products for this purpose such as cleansers, facial toners, exfoliators, moisturisers and concealers. They cleanse, clarify and nourish blemished, acne-prone skin.

The following concept describes a possible all-round care programme:

1. Daily Care / Prevention

5-alpha Avocuta (INCI: *Butyl Avocadate*) reduces excessive sebum secretions of the skin and hair by inhibiting the 5alpha-reductase enzyme.

Amisoft CS-22 (INCI: *Disodium Cocoyl Glutamate, Sodium Cocoyl Glutamate*) is ideal as a mild cleanser for blemished skin.

Pixalia (INCI: *Propanediol, Water, Cleome Gynandra Leaf Extract*) normalises sebum production and sebum quality is also improved.

2. Intensive treatment

Sytenol A (INCI: *Bakuchiol*) alleviates inflammation through the down-regulation of inflammatory genes and enzymes which leads to a considerable improvement in the acne.

Seboclear (INCI: *Alcohol denat., Water, Sodium Salicylate, Plantago Lanceolata Leaf Extract, Berberis Aquifolium Extract*) with its antibacterial effect, reduces the formation of blackheads / comedones. Counteracts local inflammation of the skin.

Ajidew ZN-100 (INCI: *Zinc PCA*) has an excellent antibacterial effect and also effectively regulates sebum production.

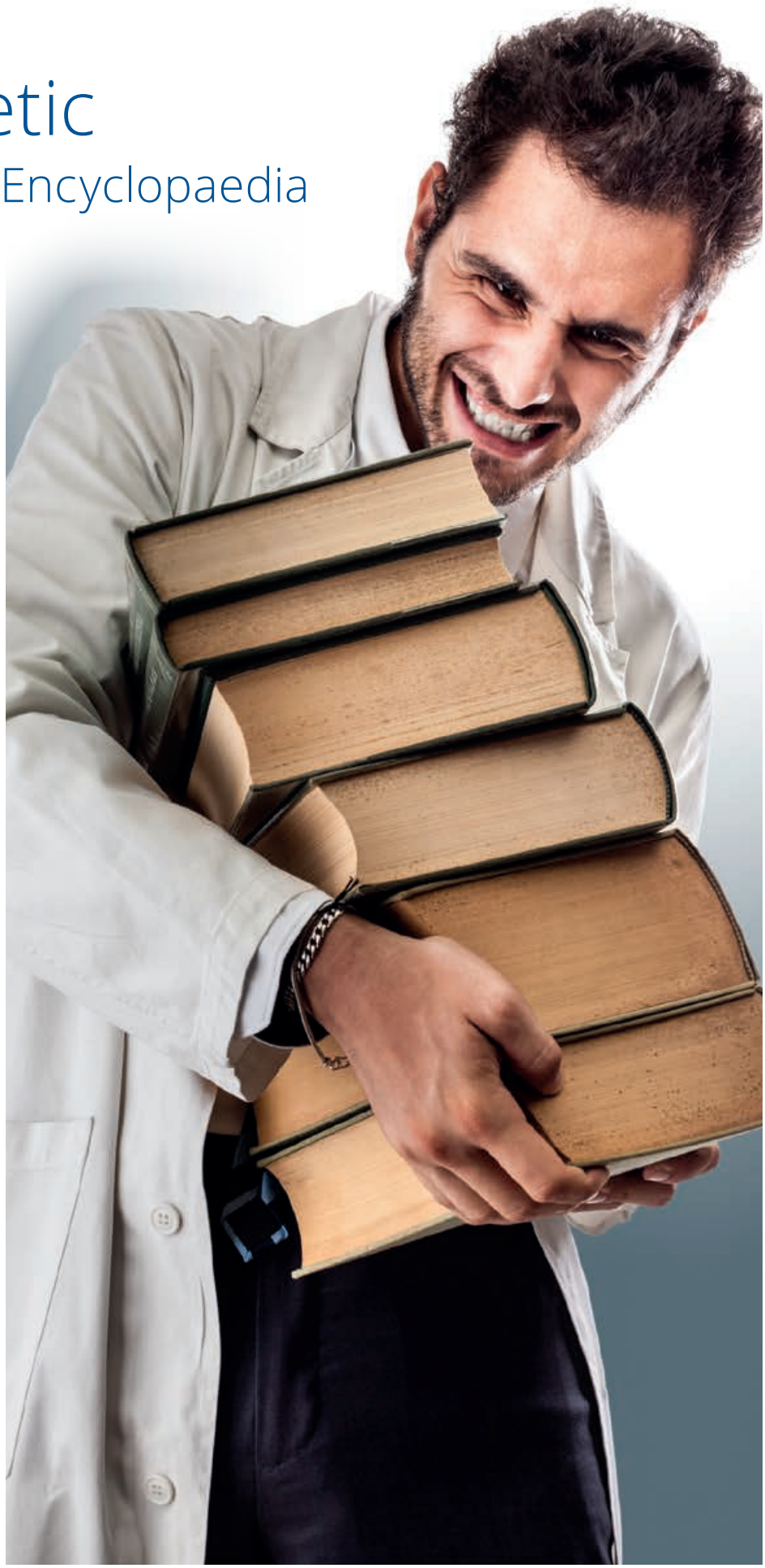
3. Regeneration

Prodew 500 (INCI: *Sodium PCA, Sodium Lactate, Arginine, Aspartic Acid, PCA, Glycine, Serine, Valine, Proline, Threonine, Isoleucine, Histidine, Phenylalanine, Water*) is known for its powerful repair and restructuring abilities which support the healing process of the skin after an outbreak of acne.

CC Glycolic Acid 50 % (INCI: *Glycolic Acid, Cyclodextrin*) is an ideal substance to use as a fruit acid peel. Glycolic acid is one of the alpha hydroxy acids, in short AHA – one of the substances most commonly used for chemical peels. The product is also ideal for the treatment of the dark, unsightly scars left behind when acne subsides.

If you have any further questions or need concept ideas, simply contact your RAHN team.

The Cosmetic Encyclopaedia



D for...

...**D**ermis

...**D**ihydroxyacetone (DHA)

...**D**ispersion

...**D**ensity

...**DD** cream

...**D**ecylglucoside

...**D**imethicone

...**D**isinfection

...**D**ermatology

...**D**epilation

Dermis

The dermis is the name for the layer of skin beneath the epidermis. This skin layer, rich in collagen fibres and consisting of connective tissue, is divided into two layers: Stratum reticulare (reticular dermis) and Stratum papillare (papillary region). Numerous blood and lymphatic vessels are woven into the dermis and it also contains skin glands and hair follicles and most of the sensory receptors.

Dihydroxyacetone (DHA)

Dihydroxyacetone is used in cosmetic products for self-tanning. This substance reacts with proteins and amino acids in the uppermost skin layer and turns brown. From the chemical point of view, this is a carbohydrate.

Dispersion

A dispersion is a fine distribution, expansion or scattering of a substance in another substance. There are usually two or several phases, one of which is the continuous phase.

Density

By density we understand the relationship between mass and volume. Density measurements are often taken during quality control procedures.

DD cream

DD stands for “Disguise & Diminish”, “Daily Defence” or also “Dynamic do-all cream». In contrast to BB and CC creams, this type is characterised by its anti-ageing properties and effectively covers up hyperpigmentation. The DD cream is suitable as a primer, foundation or make-up substitute.

Decylglucoside

Decylglucoside is a mild surfactant for shampoos and shower gels with good foaming properties and slight thickening characteristics.

Dimethicone

This is a silicone oil. Polydimethylsiloxane is a colourless and odourless oil which is mainly used to improve skin sensation and the flow properties of a cream.

Disinfection

This describes the process of killing microorganisms such as viruses, bacteria, fungi or yeasts with the help of chemical substances or using physical methods (such as heating, water removal).

Dermatology

This word denotes the branch of medicine dealing with skin and its diseases.

Depilation

Depilation is temporary hair removal in which only the visible part of the hair above the skin surface is removed and the hair follicles remain intact.

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