

COS-INSIDE

Latest News from RAHN LAB-NEWS

Soaping Effect

AROUND THE WORLD

Fermentation products Holistic anti-ageing **GOOD TO KNOW**

Aloe Vera Calculations made easy ...



Dear Readers,



Welcome to our new edition of Cosmetopolitan.

Autumn is rapidly approaching and we still have no idea what it might hold, or if the the summers re-establishment of normalcy will be here to stay. Even though everything is changing, and the days are becoming darker and colder, there is no reason to be gloomy. There are numerous reasons to welcome the arrival of autumn.

Here's our autumn bucket list, filled with activities we're looking forward to do during this colorful season:

- · Go for a walk in the forest.
- · Bake a cake.
- Make yourself comfortable on the sofa with your favorite movie and popcorn.
- Enjoy a SPA day at home.
- · Make pumpkin soup.
- Coffee dates and good conversations.
- · Tea, candles and cozy socks.
- · Scented candles and hot chocolate.
- · Rustling of the leaves when walking.
- · Visit an autumn market.
- · Carving Halloween Pumpkins.
- · Go mushroom picking.
- · Build birdhouses.
- · Send autumn greetings via postcard.

Have FUN.

Sandra Gut from your RAHN-Team

WHO IS NEW?

A very warm welcome to our new colleague joining our team:

1. September 2021



MATTHIAS EGLIN
Function
Head of Sales Europe Cosmetics
Division
RAHN AG
Joined

Welcome aboard! Excited to have you on our team. We look forward to working with you.

Corporate Sustainability

Sustainability is a much-used term these days. What does it even mean? To be genuinely sustainable a business must not solely focus on its environmental impacts. It must benefit from sound governance, look after its employers, monitor its supply chains, mind its community, and of course offer excellent products to its customers.



We are proud to announce that we have been awarded this summer with the **Bronze Sustainability Rating** by EcoVadis – one of the most renowned business sustainability providers.

This Bronze Award reflects our continuous efforts to improve our performance in terms of social and environmental responsibility. We made it into the top 39%, which motivates us to continue to improve on this achievement and reach our goals to create a more sustainable future.



Our Sustainability Report will reveal more. Have a look \dots



Sustainability Report 2020



RAHN - Behind the scenes!

Not just any team ...

Who actually works in what department and what does the department do? Meet the team \dots



SARAH GLADSTONE

Part of the team since?	2013
Responsible for?	Sales in the South of the UK
How would you describe yourself in three words?	Loyal, meticulous, sociable
What are you passionate about?	Art, The Victoria and Albert Museum, Harlequins Rugby Club, watching track and Grand Tour cycling.
What do you like about RAHN?	Interesting products with great supporting data and the support from the team in Zurich is amazing. I also really appreciate the trust from RAHN.



ROMAN OTT

Part of the team since?	September 1997	
Responsible for?	Application Laboratory and Regulatory Teams Cosmetics	
How would you describe yourself in three words?	Sociable, solution-oriented and dedicated	
What are you passionate about?	Learning, understanding and to find new solutions	
What do you like about RAHN?	Implementing own ideas and thoughts in order to be successful together.	



ANJA HAACK

Part of the team since?	1. November 2005
Responsible for?	Technical Sales Manager RAHN Deutschland
How would you describe yourself in three words?	Reliable, solution-oriented, dynamic
What are you passionate about?	Family & friends, sports, early morning run through the awakening forest, yoga, fine food & cooking, travel, nature, laughter and love of life.
What do you like about RAHN?	to be part of the family: The cooperation with all colleagues, suppliers and customers is highly respectful, considerate and appreciative. Our open feedback and error culture promotes successful cooperation and joint creativity and progress. I can live along my values, contribute my strengths and always grow! Flexible working hours, digital solutions and trust are the ideal breeding ground for a fulfilling work-life balance and mutual success for me as a 100 % working mum.

YAO JI



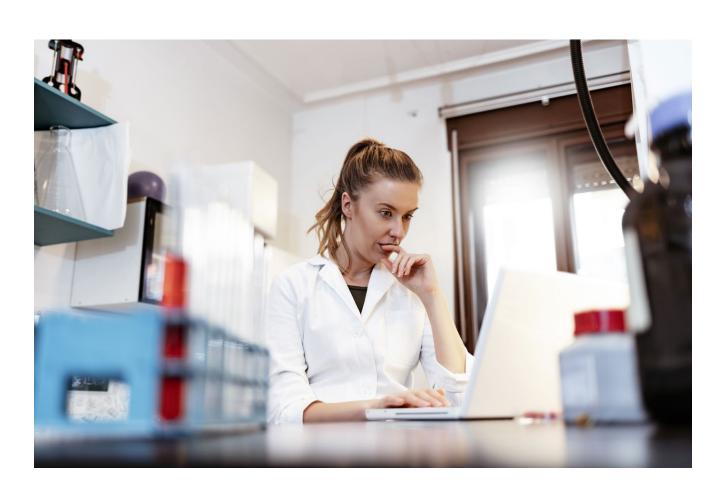
Part of the team since?	Juli 2016
Responsible for?	Product Manager Cosmetics RAHN China
How would you describe yourself in three words?	responsible, flexible, insistent
What are you passionate about?	Travelling, cooking and degustation, family
What do you like about RAHN?	Trust in employees and human care, better balance private life and professional life.

Help! Data Overload!

Are you looking for a raw material that is vegan, China-compliant, and also biodegradable? Who doesn't know this challenge?

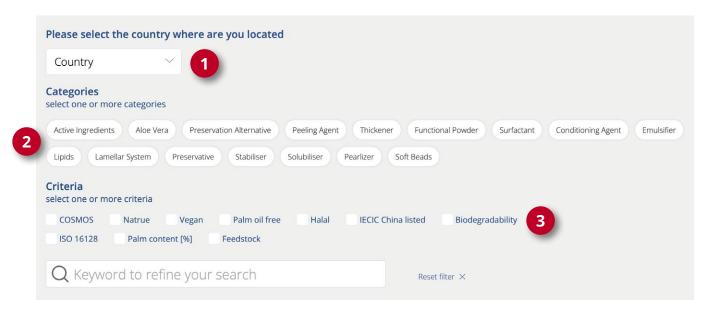
The new RAHN Product Selection Tool helps you to filter the entire RAHN portfolio or individual categories according to the following criteria:

- · Vegan status
- RSPO status with palm content / palm oil-free
- Biodegradability
- · Natural cosmetics conformity (Cosmos, Natrue, ISO 16128)
- · China conformity
- · Halal status
- · Information on starting material (feedstock)

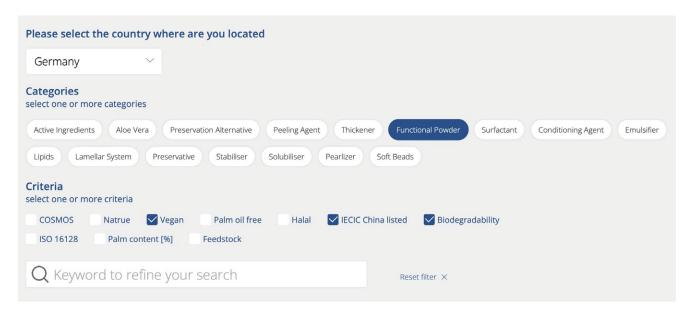


Our tool in a nutshell:

Creating a search is very easy. With three steps you create your individual and selected search:



An overview with the corresponding raw materials will be created for you immediately:



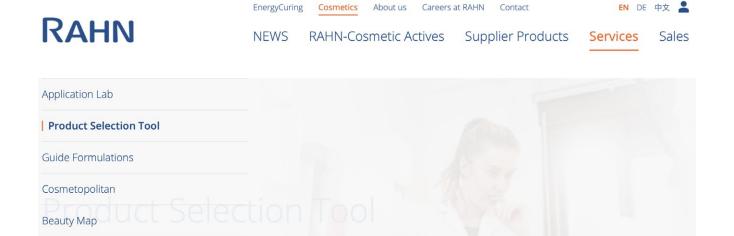
Product	Category	Sub-Category	INCI	Vegan	IECIC China listed	Biodegradability
Amihope® LL	Functional Powder	Sensory additive	Lauroyl Lysine	Compliant	Yes	Biodegradable

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Soaping Effect

What Is Soaping Effect?

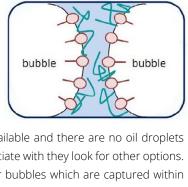
= white "foaming" on the skin during application of a cream or lotion.

It is known that surfactants result in the formation of foam and they are intentionally used in shampoos, body washes and soap systems to create foam. However, foaming effects while using skin care products are rather unwanted.

The white film rubs off completely and does not affect the effectiveness or the absorption behaviour of an emulsion but is mostly perceived as visually disruptive.

What is causing it?

- · Usually O/W emulsifier molecules build aggregates around oil droplets within an emulsion system.
- · If there is an excessive amount of emulsifier available and there are no oil droplets for the molecule to associate with they look for other options.
- · This could be around air bubbles which are captured within your formulation. Which means these air bubbles will be stabilised. Polymers and fatty alcohols within your formulation can act additionally therefore as a foam stabiliser.





How to get rid of it?

Usually, this unwanted effect is eliminated by addition of a silicone oil to the formulation. The silicone oil works in this case as a defoamer. However, as silicones in cosmetic emulsions are not liked that much and are not allowed in natural cosmetics, it is of general interest to find a solution without silicones.

Our lab experience has shown, the main reason for soaping is in general an excess of emulsifier within your formulation. We recommend reducing your emulsifier. As a rough guideline you can use 10 % emulsifier according to your oil phase size. If you do so and your viscosity is dropping, you can adjust viscosity while increasing your fatty alcohol content.

Do you have a microscope? If yes, it is worth having a look at at your oil droplet sizes within your formulation. Bigger droplets mean, there is less space available for your emulsifier. The smaller the droplets, the more surface options for your emulsifier are available, which means there is less excess amount.

Another option is trying to reduce your overall HLB value while combining your main emulsifier with a co-emulsifier with a lower HLB value. In general, we can say, the lower the HLB value, the lower the foam tendency.

What is your experience with Soaping Effect? What is your solution? Let us know. We are interested to hear.





Fermentation products

in the cosmetic industry

The cosmetics industry is often influenced by trends from the food industry. Probiotic products have been on the market for a long time, such as yoghurts with live Lactobacillus or Bifidus cultures, probiotic milk drinks such as Aktivia or Yakult and in Asia, for example, kimchi, a fermented cabbage similar to sauerkraut. Prebiotic foods are also advertised. These are primarily dietary fibres that cannot be digested by the human intestine but serve as food for probiotic bacteria. These are mostly so-called GOS/FOS, i.e. galacto-oligosaccharides and fructose-oligosaccharides. These are first broken down by the bacteria into sugar molecules that they can metabolise and then into organic acids or small chain fatty acids (SCFA), which support the immune system of the intestine and can ensure a healthy intestinal flora. The cosmetics industry is now picking up on these product categories and creating prebiotic and probiotic cosmetic formulations

While the incorporation of prebiotics into cosmetic formulation is relatively easy to accomplish, the production of probiotic products raises several questions: Probiotics are living bacteria and these must also be applied to the skin alive for the claim of "probiotic formulation" to hold up. But how do you keep the bacteria alive for a long time? Preservation of the product is out of the question, as this would cause the bacteria to die or at least severely restrict their metabolism. However, one must ensure that other germs cannot grow. Oily formulations with

introduced bacterial spores may be a solution, but extensive testing would be needed to show that the bacteria applied to the skin in this way would grow. This is because it is very difficult to change the composition of the skin's microbiota at all. In normal skin, all the growth niches of the skin are occupied by a variety of bacteria and other microorganisms, leaving no room for microorganisms arriving from outside. This is the skin's microflora, the natural defence mechanism against unwanted or even pathogenic germs, such as *Staphylococcus aureus*. This germ is never actually found on normal healthy skin, but it does appear in skin diseases such as atopic dermatitis, namely when the skin barrier is damaged. In that case, there is room for such invaders.

But what to do if you want to bring the probiotic properties of e.g. lactobacilli to the skin without using live bacteria? The answer is so-called postbiotic products. These are metabolic products (ferments) of probiotic bacterial cultures that may still contain lysed or fragmented bacterial envelopes. So, in principle, a pasteurised yoghurt would be a postbiotic ferment. Here, all the valuable metabolites produced by the bacteria are present and they can provide an environment similar to that of probiotic activity. The advantage here is that no pre-existing bacteria need to be displaced, which, as said, is very difficult. In contrast, applying a postbiotic ferment to the skin creates an environment that can favour the skin microflora. So here there are also potential prebiotic properties of a postbiotic product.



Since influencing the skin microflora is a very recent approach, a uniform claim language must first be found that is understood by the consumer. For example, products are often advertised as probiotic which, according to the INCI, do not contain living cultures but are composed of postbiotic ferments. The cosmetics industry should quickly take countermeasures here, as the terms prebiotic, probiotic and postbiotic are quickly confused. Manufacturers as well as consumers need to be educated on what exactly the terms mean and when they can be used so that this emerging, exciting market is not destroyed by the wrong use of the terms. The following is therefore a brief explanation of the terms again:



- Prebiotics: Food for desirable microorganisms (bacteria).
- Probiotics: Probiotics feed on prebiotics and produce postbiotics (i.e. they are living microorganisms)
- Postbiotics: Metabolic end products produced when probiotics feed on e.g. prebiotics (so they are not living microorganisms)

To decide whether a cosmetic active ingredient is a pre-, pro- or postbiotic mechanism of action, the following decision tree can help (Figure 1):

For postbiotic enzymes there are only a few restrictions. Almost all plant materials can be metabolised by bacteria with more or less effort. Probably one of the oldest fermentation products that helped humans settle down is sourdough. Bacteria and yeasts that occur naturally on cereal grains begin a spontaneous fermentation of starch when the grain is milled and mixed with water. Of course, the result depends on many factors such as temperature, the variation of germs on the grain, the length of the fermentation period and more. Only experienced people can determine when the fermentation has to be finished and then the bread can be baked from it. Such an undefined process is of course unacceptable for today's demands on product quality. Therefore, for the product DEFENSIL®-PURE (INCI: Water, Lactobacillus Ferment, Panicum Miliaceum (Millet) Seed Extract, Sodium Benzoate, Potassium Sorbate), a ferment from golden millet, a computer-controlled fermentation is carried out in a high-tech fermentation system. Here, the temperature and growth of a proprietary community of bacteria, selected over generations in a bakery, is precisely monitored. The ferment is harvested when the bacterial culture has reached its metabolic optimum, namely when the polysaccharides derived from the millet have been completely broken down and converted to organic acids. What happens here is heterofermentative lactic acid fermentation, which produces a particularly large number of fermentation products, in contrast to homofermentative lactic acid fermentation (Figure 2). The supernatant from the fermentation is then pasteurised and filtered so that it is a postbiotic fermentation product.

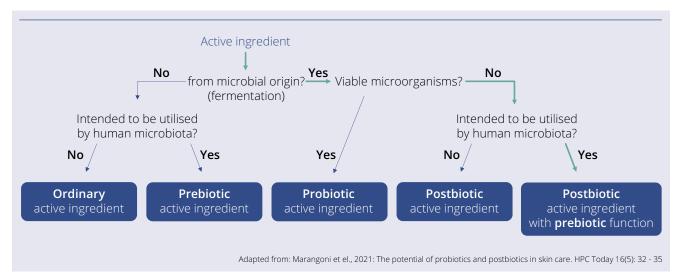


Figure 1: Decision tree for the identity of prebiotic, probiotic or postbiotic active ingredients.

So, what are the properties of such a postbiotic millet ferment?

We have carried out various studies on the effectiveness of DEFENSIL®-PURE. We were inspired by the bakers' reports of their experiences, which stated that the skin of bakers who were frequently in contact with the sourdough had a very good skin condition and that eczema or other skin diseases never occurred. We now know that certain lactobacilli taken as probiotics (i.e. viable bacteria) can have a positive effect on atopic dermatitis. Most studies here have been done with *Lactobacillus*

sakei, which is used in the production of kimchi, the Korean sauerkraut. Thus, one can imagine that daily contact with sourdough fermented from lactobacilli achieves a similar (perhaps even better, because more direct) effect. Atopic dermatitis is provoked or aggravated, among other things, by the presence of *Staphylococcus aureus*. This bacterium secretes a toxin that leads to inflammatory reactions and a weakening of the skin barrier. The postbiotic millet ferment DEFENSIL®-PURE is able to favour the growth of the related *Staphylococcus epidermidis* (Figure 3).

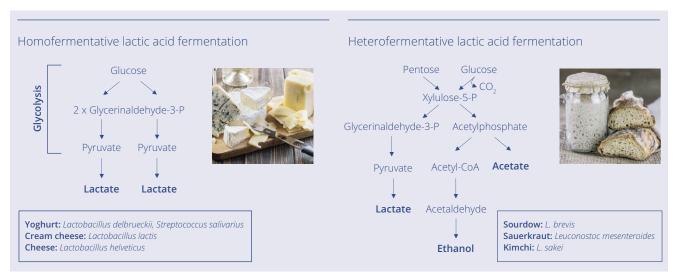


Figure 2: Homo- and heterofermentative lactic acid fermentation

S. epidermidis is one of the most important desirable skin germs. With a sufficiently dense population, it prevents the growth of undesirable germs on the skin and closes the gaps that would allow invaders to colonise the skin. Thus, postbiotic millet ferment can be said to have prebiotic activity. *In-vivo* studies could show that very dry, atopic skin gains more than 140% in mois-

ture when treated with the active ingredient. The skin barrier was also significantly strengthened. Atopic spots on the skin were greatly reduced in 2 weeks and almost completely disappeared after 8 weeks. In addition, DEFENSIL®-PURE had a clarifying effect on the facial skin (Figure 4).

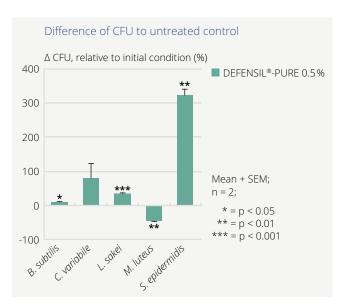
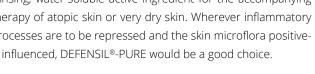


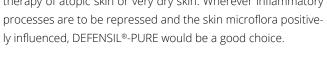
Figure 3: Prebiotic growth promotion of *S. epidermidis* with DEFENSIL®-PURE.



Figure 4: Clarifying effect of DEFENSIL®-PURE on facial skin in atopic patients.

DEFENSIL®-PURE can be used as a fast-acting (in 2 weeks), moisturising, water-soluble active ingredient for the accompanying therapy of atopic skin or very dry skin. Wherever inflammatory processes are to be repressed and the skin microflora positive-









A simple formulation to bring the effectiveness of the postbiotic millet enzyme DEFENSIL®-PURE to the skin is attached here as an example:

Repair Balm for dry skin

St	Substance	INCI name USA	% [w/w]	Manufacturer
1	Water demin.	Water	69.80	several
	Dermosoft Pentiol eco	Pentylene Glycol	3.00	Evonik, DE
	Dermosoft 1388 ECO	Glycerin, Water, Sodium Levulinate, Sodium Anisate	3.00	Evonik, DE
2	Dermofeel GSC	Glyceryl Stearate Citrate	3.00	Evonik, DE
	Keltrol CG-SFT	Xanthan Gum	0.20	CP Kelco, US
	Tego Alkanol 1618	Cetearyl Alcohol	2.00	Evonik, DE
	Myritol 312	Caprylic / Capric Triglyceride	15.00	BASF, DE
3	Citric Acid solution 10 %	Citric Acid, Water	1.00	several
4	DEFENSIL®-PURE	Water, Panicum Miliaceum (Millet) Seed Extract, Lactobacillus Ferment, Sodium Benzoate, Potassium Sorbate	3.00	RAHN AG, CH

Namaste!

Holistic anti-ageing with Ayuredi

Let's learn about the ayurvedic influences in Personal Care

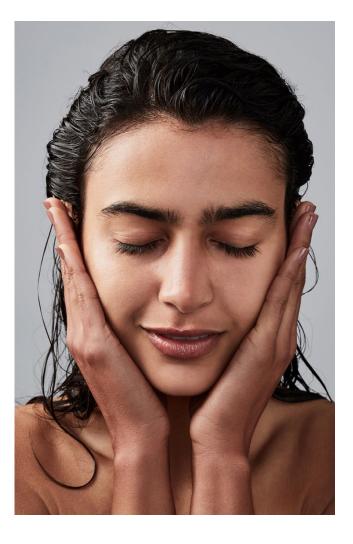
- Ayurveda is considered by many scholars to be the oldest healing science. In Sanskrit, Ayurveda means "The Science of Life."
- Ayurvedic knowledge originated in India more than 5000 years ago and is often called the "Mother of All Healing." It stems from the ancient Vedic culture and was taught for many thousands of years in an oral tradition from accomplished masters to their disciples.
- The principles of many of the natural healing systems now familiar in the West have their roots in Ayurveda.

Ayurveda and Skin Care

- Based on ancient Indian medicine, the practice includes ayurvedic facials, treatments and herbal formulations for the skin.
- · Ayurvedic skin care treatments are based on skin type.
- According to Ayurveda, a person's skin type is based on the three doshas. These are bioenergetic or life forces that make up the constitution of the body and mind.

They are:

- Vata (air and ether)
- · Pitta (fire and water)
- · Kapha (water and earth)



Know your Dosha

Pitta - Skin and Hair Types:

- Pitta-type skin is comprised of the fire and water elements. When in balance, pitta skin has a rosy, dewy glow.
- When out of balance, this skin type is prone to excess heat, inflammation, excess oil (especially in the T-Zone region), rosacea, broken capillaries, acne, blemishes & redness.
 Wrinkles tend to be most predominant in between the eyes.
- Pitta's element fire consumes energy. Urged on by environmental factors such as pollution, poor water quality and diminished sleep, Pitta hair may begin to feel delicate and depleted.

Vata – Skin and Hair Types:

- Vata-type skin is ruled by the elements air and ether. When in balance, vata type skin is olive tone, slightly cool, dry & has fine pores.
- When out of balance, this skin type is prone to excess dryness, blackheads, fine lines, premature aging & wrinkles.
 Wrinkles tend to be most predominant in the forehead region & around the eyes.
- Vata's element air makes holding onto natural moisture a challenge. Heat styling, central heating, air conditioning and exposure to sun amplify this, often leaving Vata hair dry, delicate, lacklustre and stubborn to style.

Kapha – Skin and Hair Types:

- Kapha-type skin reflects the qualities of the earth and water elements. When in balance, kapha skin is pale, soft, supple, cool and slightly moist.
- When out of balance, this skin-type is prone to excess oil, cystic acne, large pores, congestion and excess moisture.
- Kapha's elements earth and water are representing imbalance. Humidity, urban pollution, heat styling and poor nutrition exacerbate this, causing a cavalcade of hair woes; excess oil at the roots with coarse, heavy and problematic midlengths and ends.



Ayuredi in a nutshell ...

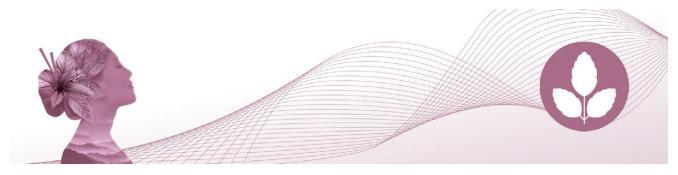
- · INCI name: Propanediol, Water, Ocimum Sanctum Leaf Extract
- Use percentage: 1 3 %
- Water soluble
- No preservative system
- · Raw material approved by Ecocert
- · Conform to the COSMOS Standard
- · Eco-designed active ingredient

Where does it come from?

Holy basil is sourced by Expanscience in Thailand, in the Chiang Mai region (north of Thailand). Holy basil, commonly known as tulsi, is a very well-known plant used in Ayurvedic medicine. Acting as an adaptogenic plant by helping the body adapt to stress and find deep reserves of energy, the holy basil is considered as an "elixir of life".

AYUREDI acts on three skin pathways making it a holistic anti-ageing active ingredient:

- 1 Strengthens cell defense to fight skin ageing:Protects the skin from oxidative stress induced by the expos-
 - Protects the skin from oxidative stress induced by the exposome (environmental & psychological stresses, in particular damages linked to cortisol).
- 2 Boosts cell energy & breathing to illuminate the skin: Protects and restores the essential functions of mitochondria, the energy factories of our cells.
- 3 Reduces inflamm'ageing to soothe the skin: Decreases inflammation mediators production.



Flash to discover the **3 formulas**!

Inspirational formulations with Ayuredi®

According to your Dosha, discover your personal biphasic lotion that matches your skin profile:

- Vata's caress for dry skins
- Pitta's spark for sensitive skins
- · Kapha's confidence for oily skins





Aloe Vera Calculations

made easy ...

One question we get asked frequently is how to calculate Aloe Vera Content in a formulation. How much do I need to use in order to have a certain amount within my formulation?

We have to differentiate two types of Aloe Vera products:

- 1. Aloe Vera Gels and its concentrates
- 2. Aloe Vera Extracts

Difference between juice and extract

Aloe Barbadensis Gel is a plant juice (and not an extract) and consists of water and a proportion of solids. The natural proportion of aloe vera solids in Aloe Vera Gel is approx. 0.5 %, the rest is water. Concentration of the Aloe Vera gel is achieved by proportionally removing some or all of the water. This produces concentrates (10x, 40x, 200x) that result in pure Aloe Vera gel (1x) when re-diluted correctly with water.

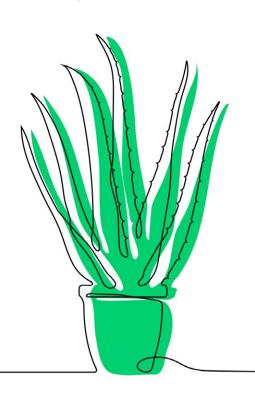


In the INCI declaration the term 'Aloe Barbadensis Leaf Juice' makes it clear that the name 'Gel' refers to the proportion of aloe vera juice.

An Extract is gained using a solvent and a certain proportion is thus extracted from the plant. When talking about extracts we therefore differentiate between the proportion of solvent and the proportion of extract (dry residue). For Aloe Vera Oil Extract AO002, for example, it is soy oil that extracts the oil-soluble proportion from the Aloe Vera Gel.



The INCI name is therefore Aloe Barbadensis Leaf Extract. In this case the INCI declaration must include the solvent and the extracted proportion.





Understanding Aloe Vera Gel concentrations

Let's use Aloe Vera Powder TN001 as an example. Aloe Vera Powder TN001 is 200 times more concentrated, meaning water has been removed from the Aloe Vera Gel to make it more concentrated with Aloe Vera solid content. For Aloe Vera Powder TN001 it means it has 200 times the amount of Aloe Vera solids than pure Aloe Vera Gel.

When we use Aloe Vera products, we need to consider the concentration of the product, the percentage we want and how much water we need to re-add to our formulation.

Calculations for Aloe Vera Powder TN001

Example: In my formulation, I want to have 20 % Aloe Vera Gel. How much Aloe Vera Powder TN001 do I need to use?

Firstly, you want to use this equation:

Percentage you want to have \div Concentration of Product = How much product you need to use $20\% \div 200X = 0.1\%$

As stated before, Aloe Vera Powder TN001 is 200 times more concentrated than pure Aloe Vera Gel. This is achieved by removing water. To be able to have 20 % Aloe Vera Gel we need to work out how much water was removed and re-add this water to the Aloe Vera Powder TN001.

Example: I need to add 0.1 % Aloe Vera Powder TN001 to my formulation to be able to have 20 % Aloe Vera Gel. How much water do I need to add to the 0.1 % Aloe Vera Powder TN001?

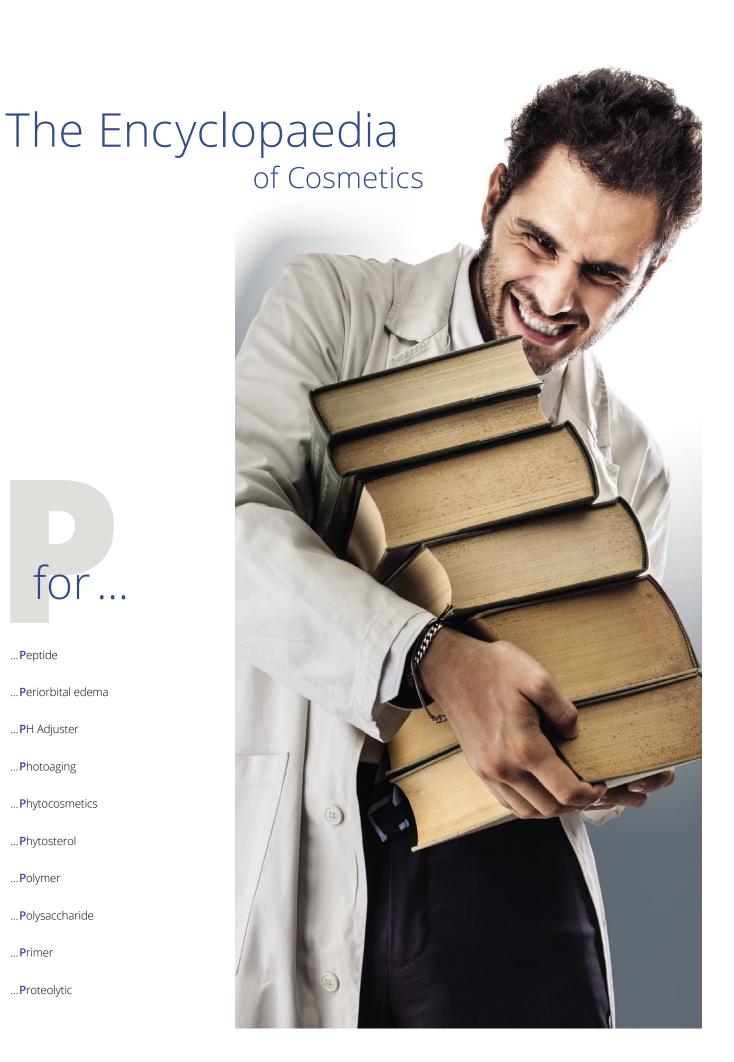
You want to use this equation:

Percentage of Aloe Vera you want to have – Percentage of product you need to use = Amount of water you need to re-add 20% - 0.1% = 19.9%

Whatever percentage water you use needs to be added to the INCI. So, in this case, add $19.9\,\%$ on top of whatever water you had in your formulation.



- ...**P**eptide
- ...Periorbital edema
- ...**P**H Adjuster
- ...**P**hotoaging
- $... {\color{red} \textbf{P}} hytocosmetics$
- ...**P**hytosterol
- ...Polymer
- ...**P**olysaccharide
- ...**P**rimer
- ...**P**roteolytic



Peptide

= Peptides are short chains of amino acids that act as building blocks of proteins such as collagen, elastin and keratin. These proteins are the foundations of your skin and are responsible for its texture, strength and resilience. Without peptides, our skin is less intact which can lead to a loss of firmness, the appearance of wrinkles, a change in texture and less 'bounce'.

Periorbital Edema

= commonly known as puffy eyes – swelling in eye orbit – area around the eyes.

pH Adjuster

= A pH adjuster is a chemical used to alter the pH. It is the measurement of the activity of the hydrogen ion or how basic or acidic something is. By adding a pH reagent such as an acid you can drive pH downward.

Photoaging

= Photoaging is premature skin aging caused by over exposure to the sun's rays. When skin ages prematurely it develops signs of aging faster than one would expect. Research shows that up to 90% of all symptoms of premature skin aging are caused by UV exposure.

Phytocosmetics

= is a part of cosmetology, which consists of using plants in cosmetics

Phytosterol

= Phytosterols are preferably used in anti-aging creams and sun-care lotions. Oils and creams containing phytosterols exhibit strong UV-protection. Furthermore, their anti-inflammatory effects make them an ideal ingredient for use in products intended for the treatment of atopic eczema and the protection of baby skin.

Polymer

= Polymers add texture and help stabilize lotions and creams, and also create a wide variety of different gels. Although they all perform the same function in a lotion, cream, or gel, they each have unique properties and can change the look and feel of your final product. Based on the structure they can be used as thickeners, gel builders, fixatives, styling agents, conditioners, pearlizers, emollients, and film-formers.

Polysaccharide

= Polysaccharides are responsible for the skin's natural ability to hydrate and retain water. They are also critical for skin repair and skin renewal. Natural component of skin that can be a good water-binding agent and potentially have antioxidant properties.

Primer

= A primer is a cream applied before another cosmetic product to improve coverage and lengthen the amount of time the cosmetic lasts on the face.

Proteolytic

= verbal description of a group of enzymes called proteinase. Function through a process called proteolysis, the hydrolysis or breaking down of proteins. In skin care they are commonly derived from fruit, used for their exfoliating properties: Papain derived from papaya, Bromelain derived from pineapple. Found in powdered form or in pads, masks and cleansers. As exfoliants they literally digest dead skin cells.

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