

# the science of beauty

Vol 8 No 4

February 2019



## 2019 ASCC Conference 7-9 May, Esplanade Hotel Freemantle





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# contents

Vol 8 No 4  
February 2019



## Business

- 10 **Marketing**  
Julian Jones
- 12 **Packaging**  
Steve Welsh
- 14 **Insurance**  
James Gillard
- 16 **Contract Manufacturing**  
Toni Ovenell
- 33 **Trade Marks**  
Gint Silins



## Educational

- 32 **Supporting Skincare Claims**  
John Staton
- 36 **PS . . . OMG**  
Wendy Free
- 40 **Sunscreen Highlights**  
John Staton
- 42 **Formulator's Forum**  
Ric Williams



## Advertisers

- 2 A S Harrison
- 3 Lipotec
- 5 Trapeze
- 11 Cosmetic Chemicals
- 13 Brenntag
- 15 Chem Colour
- 17 Ingredients Plus
- 20 Ozderm
- 21 Dermatest
- 25 Karpati
- 27 Karpati
- 31 PCI
- 39 Syndet Works
- 41 Insurance Made Easy
- 52 IKonique

## Technical

- 46 **Backhousia Citriodora Leaf Extract**  
Attia, Shortt, Begin-Lavallee, Tubia, Loing
- 49 **Delivering the optical skin effects through science to achieve the "real beauty" for natural Imperfections**  
Vincent, Elliott, Tonet, Reeth, Raopattananon

## Advertorial

- 24 **Pollushield**  
Lubrizol
- 26 **Neogen Spa**  
Comtec Cosmetic Technologies
- 28 **What is Sodium Hyaluronate**  
A S Harrison



## ASCC

- 8-9 **2019 ASCC Conference Information**





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# *meet the team...*

**REBECCA AKHYANI** is a creative perfumer with 15 years experience in the industry. Rebecca has a degree in Industrial Chemistry from UNSW and began her career as a fragrance evaluator before completing perfume school in Grasse, France. Rebecca has worked for a number of fragrance houses in Australia and abroad and is a full member of the British Society of Perfumers. Rebecca also runs perfume classes.



**WENDY FREE** has degrees in Science (B.Sc) and Technology Management (M.Tech Mngt) and is a member of a number of industry associations including Australian Society of Microbiologists, Royal Australian Chemical Institute, Association of Therapeutic Goods Consultants and is a Fellow of the Australian Organisation for Quality. With more than 25 years industry experience, Wendy's current roles include APVMA GMP auditing, contributing to the Cochrane Collaboration and on a day to day basis, Scientific Director Quality Matters Safety Matters Pty Ltd (QMSM) that has over the last decade Wendy has provided expertise to over 400 Australian and International businesses. She specialises in regulatory compliance, commercialisation, troubleshooting and GMP systems, and considers cosmetics amongst the most challenging and enjoyable part of her work.

**TONI OVENELL** is a formulation chemist and consultant for Queensland Cosmetic Formulators. She has worked in the cosmetic industry for many years in a range of roles covering areas of technical sales, quality, supply chain, manufacturing and product development. Most recently Toni has worked for a small contract manufacturer as technical manager, prior to setting up her own business. Toni is passionate about sharing her knowledge, maintaining a viable cosmetic industry in Australia and helping people bring their product ideas to market. She also likes champagne and hockey.

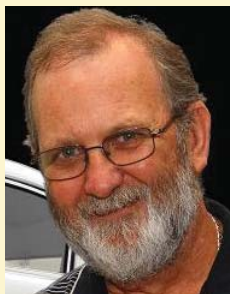


**JOHN STATON** has a background of over 40 years experience in the pharmaceutical and healthcare industries. John is a life member of the ASCC and serves in a number of industry representative roles with ASMI, ACCORD, TGA and Standards. He is the Australian representative to the ISO Committee on Sunscreen Testing-TC 217. (The committee for development of sunscreen standards). John is also in demand as a speaker on the International Conference Circuit.

**JULIAN JONES**, the founder and Managing Director of ikonsulting Pty/Ltd, is Passionate about the Personal Care Industry in Australia and Globally. Julian has been an active member of the ASCC for over thirty years. During this time he has served as President and Chairman of the Victorian Chapter of the ASCC. He is widely known and well respected both nationally and internationally for his knowledge and skills in developing and marketing the best Personal Care Products.







**RIC WILLIAMS** was educated in Sydney obtaining his Bachelor of Science in Pure and Applied Chemistry from the University of New South Wales (1980) and a Diploma of Environmental Studies from Macquarie University in 1983. Ric has had 40 years experience in the industry working for many companies and operating his own consultancy business for many years. He has presented many lectures and workshops at national conferences for the Australian Society of Cosmetic Chemists (ASCC), the Association of

Professional Aestheticians of Australia (APAA), Cosmetic and Pharmaceutical Special Interest Group (CAPSIG) and also beauty colleges nation wide.



**MARG SMITH** is the owner of Syndet Works – an Australian company established in 1984 to formulate and produce soap free skincare bars. Syndet has developed an enviable reputation for custom formulated and manufactured skincare that now extend well beyond the origins of the business.

**CATHERINE CERVASIO** is a business woman with experience in natural personal care, baby skincare, international trade, marketing and branding, spanning two decades. Catherine is most well known for developing Aromababy- the world's first skincare brand to combine the use of natural and organic ingredients with neonatal research, creating a new category in retail in 1994. As the only Australian natural baby skincare brand with registered products in China, she is also sought after as a speaker on accomplishing business in this region. Catherine was a recent winner in CIBE China (Most Popular Natural Brand) and TBPA China (Best Brand Experience) Awards along with winning the HKABA, Export category, for Excellence in Bilateral Trade – China/Hong Kong 2016.



**EMANUELA ELIA** is the Director of Ozderm, which specialises in *in vivo* testing and clinical trials for cosmetic and personal care products. Emanuela Elia has a law degree from Rome and a Master of International Business from the University of Sydney. She had collaborated with Australia's longest serving Contract Research Organisation Datapharm for a few years before setting up a cosmetic and personal care products testing facility in 2009. Emanuela is enthusiastic about improving the quality of cosmetic and personal care products' research in Australia through science.



**STEVE WELSH** is a cosmetic packaging specialist with over 20 years experience across all mediums of packaging. As the director of Weltrade Packaging, Steve leads a team of designers, technicians, printers and supply chain professionals. To ensure the best exposure of your beauty, skincare or cosmetics brand. Steve's philosophy is to design your packaging correctly, right from the start, so you can elevate your brand and move more product. Steve works closely with leaders in the cosmetic industry to ensure that your packaging consistently stands out on the shelves within this highly competitive market.



**JAMES GILLARD** is the Principal of Insurance Made Easy whose services include – business insurance, travel insurance and financial services. Insurance Made Easy has a client list of over 2000 businesses from all industries. The relevant major insurance schemes are – Hair and Beauty, Pharmaceutical Companies and Natural Therapists.

**GINT SILINS** is a registered patent and trade marks attorney, and a principal of Spruson & Ferguson Patent & Trade Mark Attorneys (incorporating Cullens). He holds a Bachelor of Science degree in chemistry with honours in biochemistry, and a Doctor of Philosophy degree in biochemistry. Gint specialises in protecting branding and innovations largely in the health care, personal care, animal health, food and beverage, biotechnology, industrial chemical, clean energy and agricultural sectors. His practice includes: conducting brand and innovation availability and registrability searches; IP audits; registering patents, trade marks and designs worldwide; enforcing intellectual property rights; resolving IP disputes; and, providing infringement and validity advice.



**TINA ASPRES** has worked as a Pharmacist for almost 20 years in retail, industry and academia as well as being a Cosmetic Chemist. Currently she works in industry and has vast experience in both the pharmaceutical and healthcare arenas. In addition to this she is a casual academic at UTS, School of Health, (Faculty of Pharmacy in Pharmaceuticals). Tina has a great interest in clinical research in dermatology and the treatment of skin disease and conditions and is Clinical Trial Coordinator at South West Sydney Dermatology. She is a keen researcher in transdermal drug delivery systems. Tina is a Member of the Pharmaceutical Society of Australia and a Member of the Australian Society of Cosmetic Chemists. She regularly consults pharmaceutical companies in the area of acne, eczema and skincare especially in the area of cosmeceuticals and has devised and written numerous support, training and education material for companies aimed at both professionals and consumers. Tina consults for the Eczema Association Australasia and is on their Integrity Assessment Panel and has worked with Choice Magazine on numerous reports. Tina has presented at the Annual Scientific Meeting of the Australasian College of Dermatologists and has published within the pharmacy and medical literature in the area of sun protection, Vitamin D, skin cancer prevention and eczema as well as co-authoring the book 'All About Kids' Skin – The Essential Guide' published by ABC Books



# 2019 ASCC Annual Conference

7-9 May, 2019



## The Esplanade Hotel, Freemantle

As we head into the New Year, the countdown is well and truly on for the 2019 Fremantle conference. With less than 100 days to go, the organising committee has pulled out all the stops with preparations hitting fever pitch.

We are very pleased to announce that Dr Alain Khaiat will be the Plenary speaker for 2019. A true superstar of the cosmetics industry, Alain was awarded the first in-cosmetics Lifetime Achievement Award, recognising his contribution to the cosmetics industry, promoting product safety, ethical approaches and training all over the world.

Having previously been the vice president of research and development at Johnson & Johnson, Yves Rocher and Revlon his experience is extensive. Alain is the current president of the Cosmetic Toiletry and Fragrance Association of Singapore, Vice President of Technical and Scientific Affairs of the ASEAN Cosmetic Association and Senior International Expert (Post Market Surveillance, Product Safety, Product Efficacy and Quality) with organisations such as the European Commission, and the UN Trade Centre. His speaking topic will address the conference theme of 'East

Meets West, The Beauty of Opportunity' and I for one will be taking notes!

Congratulations to those who had technical papers and workshop presentations selected for inclusion in this year's conference. There was significant competition as both the number of submissions and quality of papers were outstanding.

The social events are also taking shape, with some unique and quintessentially Western Australian locations being included. What better way to kick things off than with a sundowner at the famed Little Creatures Brewery for our welcome function. Come and raise a



# Conference Sponsors



glass while watching the sun set over the Indian Ocean as we make new acquaintances and reunite with old colleagues.

Dr Richard Walley, our keynote speaker, will be running his 'Sound, Sense, Sandalwood' experience on the Wednesday night. Richard immerses participants into a sound and sensory landscape combining the dreamtime sounds of the didgeridoo and Nyoongar chant with the landscapes of Western Australia, designed to awaken participants' senses and reconnect with nature.

Truly a night not to miss!

To celebrate the close

of the conference, we are calling all crims and crooks, screws and scirms to come join us inside the historic Fremantle Prison for our 'not so gala' dinner. Don't be surprised if you end up shackled in ball and chains or find yourself sent to solitary confinement during the course of the evening! The Prison warden will be in charge of the Hangman's noose, so you'll want to be on your best behaviour and remember all non-attendee's will be sent to the gallows – where 43 men and 1 women were hanged before you!

Dress up, or be prepared for a flogging – criminals

past or present, cops or convicts, heroes or villains – there is plenty of scope – so join in the fun, don your themed costume and let's make this ASCC Jail House Rock in 2019 !

With the final sponsorship opportunities having been announced and tickets now on sale, we can't wait to welcome our sponsors, brand owners, formulators, manufacturers and suppliers to the biggest cosmetic science conference ever held this (West) side of the Nullarbor.

**Michelle Kane**

Chair – COC 2019

## happy “new” year ... or is it?

by Julian Jones

Well, here we all are in a brand new year! Lots of us will have made new year resolutions promising ourselves we will do things differently this year, whether it be a new diet, a new job, new experiences or maybe change old habits.

There's a general feeling that anything new, including a new year, requires change for the better – or at least something different. Perhaps, though, we should take a look at this assumption when it comes to our products and services.

I have written before about the brand value associated with a long-term successful history. It's something that can't be fabricated or bought. Such brands have built up a long-term loyal customer base because the experience of using them has been consistently great over many years. Making changes to such brands comes with the risk that we may damage that well-earned reputation or deliver to our loyal customers (and potential new ones) an experience that they don't like!

For many brands, this can lead to fear of innovation. What if our new formulation doesn't meet with our customers' expectations and they decide to try some other product or service? It's a reasonable concern.

On the other hand, some brands and service companies hold innovation as one of their core value differences. It's how they differentiate their business from

their competitors and that's fine! But, it comes with an inherent challenge: their next product or service has to be mind blowingly great or it won't deliver the growth and profitability required.

For most of us it's a balance between existing great products and real, well-designed improvements.

In the Personal Care and Cosmetics industry, we as brand owners are constantly bombarded with the “Next Big Thing”: breakthroughs in active ingredients that will drive the next Mega Trend. And, sometimes, that is exactly what we are being offered. Remember when Peptides hit the market and a whole new opportunity for Anti-Aging skincare products became possible, and indeed, grew to be a massive new market within our industry? You sure didn't want to miss out on that trend – that continues today!

But on the other hand, what about two-in-one conditioning shampoos? They promised a lot but the consumer experience turned out to be less than great and after an initial sales trend, pretty much died because putting those two functions together in a “convenient” single product delivered a worse result than having two products that worked better!

Another way to think about improving your products from a customer perspective is to keep a careful watch out for new research in active ingredients



you are already using in your formulae. The ingredient suppliers in our industry are constantly revisiting their existing ingredients to see what additional or improved results they may offer. As longer term efficacy testing is performed on existing actives, some interesting results often become known. There's nothing wrong with updating your marketing claims for a well-established product to highlight these extra benefits and as a bonus, your formulation stability and manufacturing methods stay the same so very little extra cost for a potentially big sales gain!

So, as we all move into 2019 and seek to grow our businesses, let's take the time to think about the best way to do this – managing the risks and benefiting from some new thinking.

After all, every new opportunity starts with a new idea!

Till next time, Cheers!

*Have a great 2019!*

**Julian**



Concept is the distributor for ActivON. CO. Ltd. across Australian Pacific region.



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# Global Beauty Trends 2019 . . .

## *It's here already!*

by Steve Welsh

Wow 2019, marking my 25 years in packaging for the beauty, skin care and wellness industries.

Again, just in a flash Christmas and New Year are just a distant memory. Last year when we discussed the global beauty and cosmetic trends for 2018, it received such a positive response and helped many of you, so we decided to do it again. Looking at the upcoming trends and what we already see happening, we are excited for 2019!

### Another push for sustainability

2018 saw the plastic bag ban and movement towards plastic straws being removed as the increasingly conscious consumer are encouraging their favourite brands to be more environmentally responsible with their formulation and packaging.

At Weltrade Packaging we promoted tubes in single and multi-layer post-consumer recycled resin (PCR up to 45%). Brands have taken to this across the market from skin care, hair care, tanning, and make up brands. This trend is continually picking up momentum and it won't take long until you will be left out if you are not looking to these options.

We also released our bottles and tubes made from plant based plastic. Our bioplastic polyethylene is derived 100% from sugar cane is 100% recyclable in

standard recycling streams and uses no fossil materials. We made some major advances in the options for barrier tubes to a place where the consumer sees and feels the packaging as a replica of our standard tube, while the brand can lower their carbon footprint.

In the next twelve months at Weltrade Packaging we won't be standing still. We will continue to push for smarter renewable options, look to produce quality minimal packaging with our brands and spend more on research and development on new materials and testing to help our customers.

### Get it streamlined

Expect even more streamlined packaging design this year, in appearance and production. The minimalist approach is still popular and we help satisfy your consumers hunger for knowledge of what is in their favorite products while maintaining visual aesthetics.

We have been designing new moulds for customers wanting more efficient decoration area and greater shelf presence to compliment classic printing options.

### Beauty and wellness will continue to congregate together

Expect 2019 to be the year that this really explodes, more and more beauty



brands releasing supplements, the boundary between beauty and wellness blurring and making beauty a holistic approach of quality products.

We looked at Wellness 2+ years ago and have built options for a wide range of cosmetic looking wellness packaging with the majority manufactured right here in Queensland.

With so many brands releasing and formulating new products that will provide positive effects for their consumers, we are really excited by the science in this space!

### Small "indie" brands getting bigger

We are seeing this across so many industries: Skin Care, Wellness, Micro Beer Breweries... Smaller brands are taking on the big guys with their fast moving approach to social media through Instagram and YouTube.

Some of the key advantages we see for



smaller brands are they can formulate instant fixes to beauty challenges, they can use more natural and unique ingredients and bring their products to market quickly. The challenge for larger brands to do customization or personalization is quite difficult as they are restricted by large production runs. As consumers crave personalized products more and more smaller brands are really able to take advantage of this.

There will be a normal evolution of larger brands buying smaller brands to help them enter this market and this goes well for the entrepreneur that is building their skin care business in this space right now.

## Premium packaging

You've heard 'sex sells'. In our field if the packaging does not look good, is run

of the mill or replicated in stores across the country then you will find you are up against a challenge.

We have helped so many brands in the last 25 years get established and expand their market both in Australia and overseas by standing out from the crowd. We understand the value of making packaging look great and hitting the price point.

In 2019 expect to see more premium packaging that appeals to the consumer but also meets the key benchmarks of the other trends for 2019 – Socially responsible, streamlined, fits with wellness applications, presents exceptionally well on social media while holding it's own in traditional retail channels.

The first quarter for any year is the time to plan, develop, create and

commence. We stand ready to help you along the way with your new products, so don't hesitate to reach out to us! [info@weltradepackaging.com.au](mailto:info@weltradepackaging.com.au)

**STEVE WELSH** is a cosmetic packaging specialist with over 20 years experience across all mediums of packaging. As the director of Weltrade Packaging, Steve leads a team of designers, technicians, printers and supply chain professionals. To ensure the best exposure of your beauty, skincare or cosmetics brand. Steve's philosophy is to design your packaging correctly, right from the start, so you can elevate your brand and move more product. Steve works closely with leaders in the cosmetic industry to ensure that your packaging consistently stands out on the shelves within this highly competitive market.



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- Sunscreen Actives
- Surfactants
- Vitamins



## INSURANCE CLAIM

## BUSINESS

## SUPPORT



# a better insurance claim outcome

by James Gillard

If you have ever had to make an insurance claim you will know it is the true test of your policy and the cover provided. It is important you understand the claim process and seek advice from your Insurance Broker to assist you with the preparation of your claim.

Insurance companies generally try to make the claim process as simple as possible. The faster the settlement is, the more satisfied customers are.

## When making an insurance claim

In this article I have outlined for you some key tips that have stood the test of time in my 26 years of operating our Insurance Brokerage and assisting our customers when they have had a claim to submit.

### Step 1. Who do I notify?

If your loss or damage involves theft, vandalism, or malicious acts, you should quickly notify the police. Once you obtain your police report number, contact your Insurance Broker or Insurance Company immediately.

There are a few reasons why you need to let your Insurance Broker know about your insurance claim from the beginning

- Your Insurance Broker can review your current insurance cover and provide you with knowledgeable advice on whether the insurance claim is valid
- Your Insurance Broker is there to guide you in the preparation of your insurance claim and claim related documents



- They are also there to provide advice of what supporting proof you will require
- Whilst some claim documents are straightforward, others can be more complex, and your Insurance Broker is there to help guide you to complete these
- Insurance policies have limits of cover and you will need to be aware of these when lodging a claim

### Step 2. Lodging your claim

It is important to then take the next



step and lodge your insurance claim. Your insurance claim should be lodged as soon as possible so you can obtain your claim number. The actual information you require to support your insurance claim will depend on the nature of your claim.

Generally speaking, you must have:

- Your Insurance Policy number(s) and details of the insureds on the policy
- A detailed description of the incident itself and any other parties involved in the claim
- Proof of loss such as police report number, proof of ownership of the claimed items, receipts, invoices, quotes for repair or replacement etc. In some cases, a medical report might be required if appropriate to the claim

### Step 3. The Insurance company making payment

A simple and straightforward insurance claim should be processed and accepted quickly. More complex claims will take longer. Your Insurance Broker can help you follow up with the insurer on your claim process and seek a higher priority from the insurer for your claim if it is taking too long.

According to the General Insurance Code of Practice, the insurance company must respond to your claim within 10 business days and tell you whether there is any further information required.

Insurance companies may appoint an investigator or assessor for further information.

Remember that:

- The Insurer must notify their customers of any investigator/ assessor being appointed within 5 business days
- The insurer must update you of the progress of your claim every 20 business days.

In some complex claims, your Insurance Broker can negotiate a progress payment from the insurer to assist you with any financial difficulties you may be experiencing. Your Insurance Broker can generally help you to follow up and negotiate with the insurer regarding settlement of your claim if that is needed.

Your Insurance Broker is there for you to help take the stress out of a claims process and give you valuable guidance as the claim process progresses.

Should you have insurance enquiries for your Business Insurance needs then contact the friendly team at IME Insurance Brokers – Insurance Made Easy for personal assistance to discuss your individual circumstance 1800 641 260 or visit us [www.imeinsurance.com.au](http://www.imeinsurance.com.au)

**James Gillard**

*Managing Director*

ASSESSA is a Brazilian company specialized in the development and production of high-efficiency bioactive ingredients for the cosmetics industry.

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PLATFORM

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**ASSESSA**  
INNOVATION FOR A GREENER WORLD

# costs of manufacture – where do they come from?

by Toni Ovenell

When I was working for a contract manufacturer I spent a lot of my time doing quotes for customers, or potential customers only for them to come back and question the pricing. They would tell me that they have worked out the costs of their product based on pricing given to them by a raw material supplier and the packaging company and couldn't understand where all the other markups came from.

There are a lot of costs that go into the manufacture of a product. Some are obvious, but some may be hidden. Below is a list of some things to consider when calculating the costs of your product so you don't go in unprepared.

## 1. Raw Materials

Manufacturers may either supply the raw materials required for your product or ask you to supply your raw materials if they are not on their inventory. But remember, the cost of raw materials used in your production doesn't only include the price per kilo of the actual raw material. If your manufacturer purchases the raw materials they may only require 20kg of product for manufacture but can only purchase in a 25kg bag. This extra 5kg will have

to stay in stock until the next time it is used adding to extra inventory and costs. It also takes time to check how much of the raw material is in stock and place the purchase order. The manufacturer may need to chase up the raw material as well. On top of the supply costs, each raw material arriving on sight will need to be tested by the Quality Control department and checked in by the warehouse. Both of these take time to do and add to the cost of the raw material. Even if you, as a customer, supply the raw material this step needs to be carried out.

## 2. Packaging

As per raw materials packaging also needs to be purchased, unloaded and/or checked in at the front gate. This may not be as time consuming as testing of raw materials but will still take time to do.

## 3. Manufacturing

At the manufacturing stage there are many steps that are required to produce an order. These include but are not limited to:

- a. Entering the order into a system
- b. Producing paperwork (manufacturing



- records, packing records, purchase order confirmation) for the order.
- c. Checking inventory and production schedule to ensure stock arrives in time for manufacture.
- d. Manufacturing your batch. At this stage it is worthwhile noting that it may take the same time to manufacture a 50kg batch as it does to manufacture a 500kg batch. All of the previous steps need to be done for each batch and at manufacturing you still need to follow each step and weigh out each raw material.
- e. Testing of the manufactured batch. This may require both internal and external testing and may include physical, chemical and micro testing. The batch must pass all of this criteria



before proceeding to the filling stage.

It can be noted that each of the steps need to be carried out and take approximately the same amount of time regardless of the batch size. The larger the batch size, the more these costs can be spread over the batch, and the lower the cost per kg should be.

#### 4. Filling

Filling, as per manufacturing, can be set out over a few steps

- a. Preparation of filling equipment including set up and cleaning.
- b. Filling of the product including capping and packing in shipping containers. The number of units filled per hour will depend on the type of equipment, the type of packaging, the number of packaging components and even the type of product being filled. For example, you may have an extremely foamy liquid that you may

need to fill at a slower rate to avoid bubbles and product overflow.

- c. Cleaning of filling equipment.
- d. Filling out paperwork, and QC of filled products.

As per manufacturing there is one variable (the amount of time it takes to fill the product depending on the batch size) but all of the other steps are fixed. It can be concluded at this step that the larger the batch size and the more units to be filled, the lower the cost per unit.

#### 5. Dispatch

Your manufacturer may or may not organise freight from their site. This is also something to consider in the final cost of your product.

As can be seen from above there are numerous stages to the manufacture of your product and each has an associated cost. Your manufacturer needs to incorporate these costs plus the

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general costs of running a factory into the final price of your product. Your manufacturer needs to ensure that they cover their costs plus make a profit and will add a margin to the costs as well.

Keep this in mind next time you ask for a quote and good luck!

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# skin desquamation v's skin exfoliation

by Tina Aspres

Often when discussing skin care, the terms “desquamation” and “exfoliation” are used interchangeably. Whilst both are integral to maintaining optimal skin health, there is an important difference between the terms. Quite simply, desquamation happens naturally (endogenous), whereas exfoliation is an applied process (exogenous) that is utilised to assist and/or speed up desquamation.

Before discussing desquamation and exfoliation, one must understand the process of keratinisation.

Keratinisation begins in the lower layer of the epidermis (called the basal layer), where new cells (keratinocytes) are produced. These newly formed cells then undergo a maturation process where they migrate up through the layers of the epidermis until they reach the outermost part of the epidermis (stratum corneum). During this upward journey the cells (keratinocytes) undergo major transformations which include: (i) manufacture of intracellular strong protein filaments (keratin) that contribute to skin barrier function (ii) production and secretion of lipids and

other proteins extracellularly forming a strong intercellular cement substances that holds keratinocytes together and (iii) the loss of the nucleus and other cytoplasmic organelles transforming the keratinocyte from a live viable cell to a dead compressed cell containing keratin proteins and surrounded by cellular lipids. As keratinocytes move up the epidermis and undergo these changes they push the dead, old, dehydrated cells above them off the surface. The entire keratinisation process takes approximately 28 days from the time a keratinocyte is born to the time when it desquamates off the skin's surface.

## What is desquamation?

As described above, the process of keratinocytes (epidermal skin cells) being born, maturing, migrating up the epidermis, dying, and being shed off the skin is known as “keratinisation.” The final step of the keratinisation process is “desquamation”. Desquamation is the natural physiological process (endogenous) through which your skin sheds the outer layer of old skin cells from the surface of the epidermis.



Approximately 1,000,000,000 skin cells are shed each day. One sheds approximately 3kg of dead skin cells per annum.

When skin cells are shed regularly and uniformly, the bricks and mortar structure of the skin is preserved and optimal skin barrier function is maintained, thereby providing skin hydration, and protection from environmental insults and invasion by microorganisms. Normal desquamation however, slows down with age, hormonal changes and deficiencies in vitamin A and D, often resulting in a dull complexion, poor skin texture and roughness and loss of youthfulness.

## What is exfoliation?

Exfoliation is an applied process (exogenous) that is used to speed up or improve the skin's natural desquamation process to try and restore or improve the appearance of the skin.

There are two main types of exfoliation – chemical and mechanical/physical.

*Chemical exfoliation* may be achieved by the application of a chemical substance (e.g. hydroxy acids, retinoids) in the form of a topical skincare product or a peel to the skin to disrupt the 'glue' that holds together the keratinocytes in the 'bricks and mortar' structure whilst mechanical exfoliation is the application of friction by the use of a device or small particles (as in abrasive scrubs) to remove dead skin cells by either rubbing, scrubbing, scraping or sloughing off the top layer of skin. Regardless of the means of exfoliation, the aim is to achieve a brighter, smoother, even textured, glowing complexion and to allow for better penetration of skin care products.

Chemical exfoliation involves the application of a substance on the skin that will dissolve and loosen the dead skin cells. Chemical exfoliants include acids, retinoids, enzymes or other agents to the skin. Alpha hydroxy (AHA) and beta hydroxy acids (BHA) are the two most common types of acids used although polyhydroxy acid use is gradually increasing.

AHA's can be gentle and effective as exfoliants but may also penetrate into the superficial dermis, stimulating collagen and hyaluronic acid synthesis. They help even out skin tone, diminish the appearance of fine lines and wrinkles, improve blemishes/pigmentation and are often included in anti-aging products. AHA's include glycolic, lactic, malic, mandelic, azelaic and citric acid. The most often used AHA's are glycolic acid and lactic acid, with the glycolic acid molecule being smaller than the lactic acid molecule. Glycolic acid therefore will penetrate a little deeper but can be a little more irritating than lactic acid, especially in those with sensitive skin. Lactic acid is better suited for sensitive

skin and is a little more hydrating than glycolic acid.

Salicylic acid is a BHA and whilst it's an exfoliator, it also has anti-inflammatory, keratolytic and antibacterial properties and may be used in a variety of other skin conditions such as in acne skin. Unlike AHA's, salicylic acid is also oil soluble so will penetrate the pilosebaceous unit to unclog pores hence its suitability for oily, acne prone skin.

Polyhydroxy acids are the next generation of alpha hydroxy acids that also act as chemical exfoliants. They are thought to be as effective as AHA's but less irritating and less sensitising as they are a larger molecule so do not penetrate as deeply as AHA's or BHA's, hence may be used in those with sensitive skin, atopic dermatitis or rosacea. They are also thought to exhibit antioxidant and anti-inflammatory effects. Examples of PHA's are lactobionic acid and gluconolactone. PHA's appear to also provide better humectant and moisturisation properties compared to AHA's and are thought to help improve stratum corneum barrier function.

Retinoids are often used as chemical exfoliants and have the added benefit of increasing cell turnover also. They come in a variety different types – from over the counter retinol and retinol esters to prescription tretinoin.

Plant derived enzymes also work by gently dissolving the glue that holds skin cells together. They may be natural or synthetic in origin. They may be derived from papaya (papain), pineapple (bromelain), pumpkin and kiwifruit (actinidin).

Mechanical means of exfoliation involves the application of a type of friction to the skin. The degree of exfoliation achieved will depend on the method used, the pressure that is applied to the skin and the number of passes. Mechanical exfoliation may be achieved by either the use of devices such as microdermabrasion or dermaplaning, wash cloths (e.g. microfibre), sponges, face brushes or the use of tiny particles in rinse off products in the form of scrubs.

Particle types vary and include ground seeds or shells such as apricot kernel or walnut – which are rough and abrasive, creating micro scratches on the surface of the skin, or ground coffee, salt, sugar. Jojoba wax bead use is increasing and they have been found to be a better alternative as they are gentler and non-abrasive and better for the environment.

Of more recent times, cellulose products have been formulated into scrubs, gels or peels that work by being applied to the skin and then they are rubbed off forming tiny little balls acting as exfoliators. They are gentle, smooth edged yet effective and nonabrasive to the skin. They are also environmentally friendly.

Face cloths made of cotton, microfibre or muslin may also be used as a means of mechanical exfoliation as can facial brushes – available as manual – where you brush over the face or battery powered – such as the Clarisonic – which provides a variety of brushes of different bristle roughness. The softer the bristle on these devices, the gentler will be the exfoliation.

*Mechanical exfoliation* often provides immediately visible results, working on the upper layers of the skin. One of the issues is over scrubbing or overworking these top layers of skin resulting in over-exfoliated skin.

## Should everyone exfoliate?

Exfoliation is not the solution for every skin type or problem. Sometimes skin may be over-exfoliated causing thinning, dryness, dehydration, redness, sensitivity, irritation and inflammation. Anyone on isotretinoin should avoid any type of exfoliation until completion of their treatment course and anyone on topical retinoids should take care with other exfoliants they may use. It is always best to under exfoliate, commencing with topical application use once a week and then gradually increasing frequency of use before considering a more potent topical exfoliant. Chemical peels of various intensities – from superficial to deep – may also be applied by professionals to achieve more



pronounced results.

The degree of exfoliation that may be achieved by chemical or mechanical exfoliation can vary from gentle to harsh. It is important to be aware of skin type and problem and know when to use chemical exfoliation and when to use mechanical exfoliation. Acne-prone skin is better suited to chemical exfoliation rather than any type of mechanical exfoliation which will only aggravate acne. Glycolic acid, salicylic acid and retinoids are all suitable considerations for effective topical acne treatments. Dry skin would be more suited to lactic acid exfoliants as they will help improve hydration whereas retinoids would not be the first choice. Mechanical exfoliation should also be used with caution as it may contribute further to skin dryness and flakiness. Mechanical

exfoliants and potent chemical exfoliants should be avoided in rosacea prone skin as any type of friction or chemical irritation will trigger a flare up of the condition. Skin pigmentation will often benefit from regular gentle exfoliation to help eliminate superficial pigment laden keratinocytes. Moisturiser use and daily sun protection with a 50+ sunscreen are also essential to any exfoliation regimen.

In summary, as we age, the process of cell regeneration slows down and cell retention increases. This means that the body is slower to shed skin cells and generate new ones. When old skin cells start to pile up on the surface of the skin, it can leave skin looking dehydrated and dull. Furthermore, the build-up of dead skin cells can result in excess oil, bacterial colonisation and clogged pores, leading to blemishes and

acne. Proper selection of a chemical or mechanical exfoliant removes the barrier of dead skin cells clogging the skin and uncovers younger, plumper and more hydrated new cells below. This leads to the appearance of brighter, healthier skin as well as enhancing the penetration of moisturisers and skin care actives. By maintaining optimal desquamation, regular sensible exfoliation will leave skin looking brighter, smoother and healthier.



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# what parameters indicate 'healthy' skin?

by Emanuela Elia

Whilst cosmetic products are designed to maintain or improve skin health and appearance, how do we demonstrate this? Over the past two centuries, dermatological research has clearly identified parameters that affect skin health and their way of function. Below we are going to discuss some of the most important parameters for healthy skin and how they influence the formulation of cosmetic products

## Skin pH

The pH is scored on a scale from 0 to 14 with the neutral point being 7. Values over pH 7 indicate basic conditions and values under pH 7 indicate acidic conditions. The further the value is away from the neutral point, the stronger the acidity or basicity (the latter is also known as alkaline). The pH level of skin surface normally ranges between 4 and 6, which means that it is typically slightly acidic. This helps protect against microbial pathogens that can cause disease. The slightly acidic skin pH also stabilises the skin's barrier function which prevents water loss from the inside and penetration of pollutants or irritants from the outside. Thus, the protective function performed by the skin's acid mantle is weakened by changes in the

pH value. Such change can cause skin infections, dehydration, skin irritations and allergies. Skin care products can alter the pH of the skin surface. Soaps for example, are basic and can increase the normal skin surface pH, which may result in a higher risk of damaging barrier function and a reduction in anti-microbial protection. The measurement of the pH-level on the skin surface is an important parameter for evaluating the nature of the skin surface in relation to the use of a cosmetic product. Cosmetic products that least alter the normal skin surface pH are generally considered better for our skin.

## Skin Sebum

Epidermal surface lipids (sebum) have an important role on normal skin function. Elevated sebum excretion (oily skin) is a major factor involved in the pathophysiology of seborrheic skin and acne. On the other hand, insufficient skin sebum level results in dry skin, which can lead to dermatitis and bacterial infections. Sebometry is a skin bio-engineering technique used to measure skin surface lipids quantitatively. The advantage of using instrumental readings in place of observational methods is the prevention of misdiagnosis through the

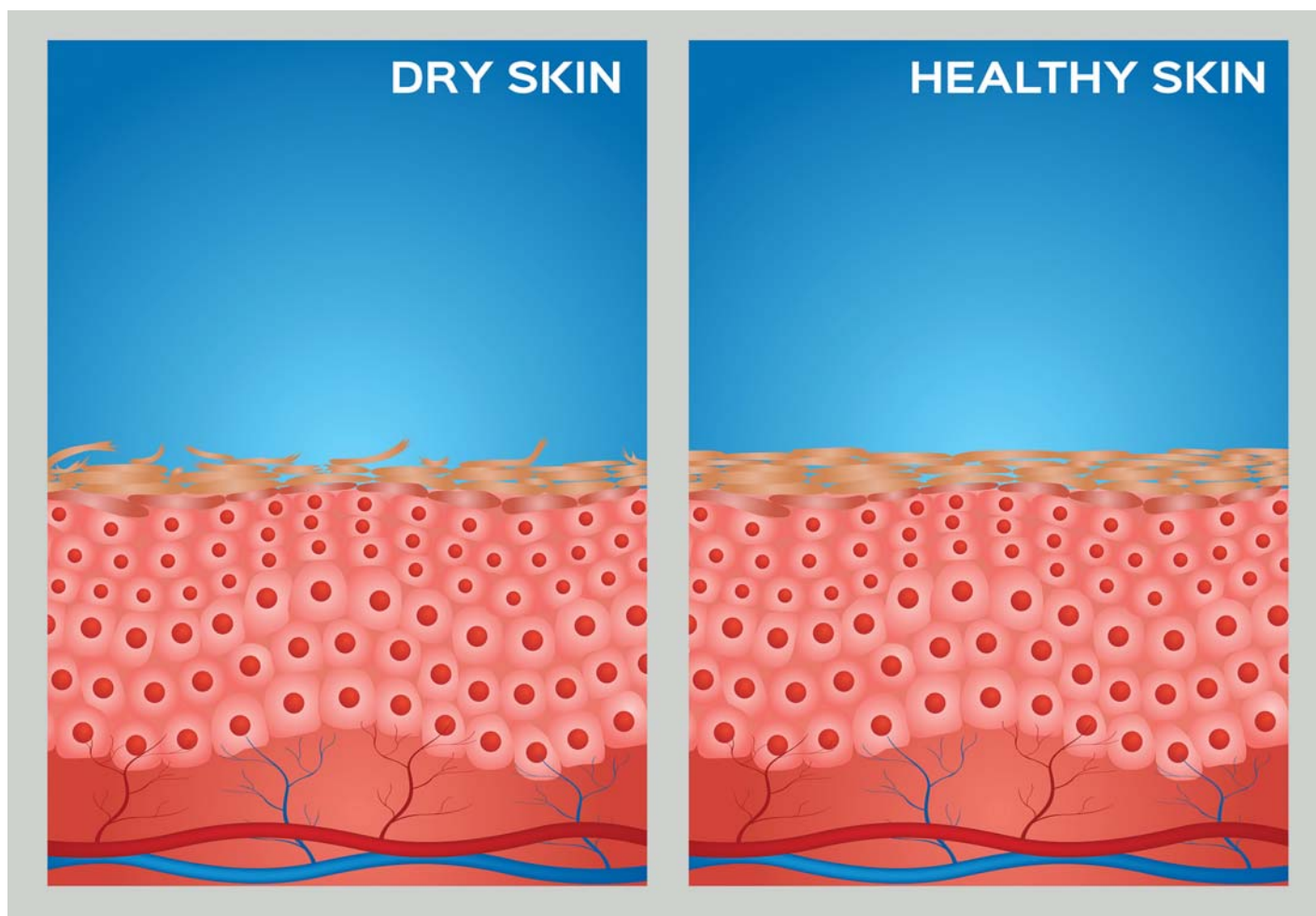


objective measures of oily, normal or dry skin. In particular, sebometry can assist in demonstrating the sebum normalizing properties of a cosmetic product. In addition, sebometry is largely used to help monitor a cosmetic product's long-term effect on the skin sebum level.

## Skin Hydration

'Skin Hydration' can be defined as the process of providing adequate amount of liquid to the skin. To hydrate or moisturise means to restore or maintain fluid balance. When skin is properly hydrated, it is better protected against environmental influences. It feels smooth and plump and somewhat bouncy to the touch. When it is not, the skin can be tight, flaky and dull. These effects are also normally due to skin aging. From a cosmetic point of view, hydrated skin





looks healthier and younger. But also, skin that is regularly moisturised has been known to ‘age’ slower than the non-moisturised skin. Measurement of the hydration level of the stratum corneum provides an important indicator for the health of our skin. Moreover, it has significant applications with regards to the evaluation of the efficacy of a cosmetic product.

#### Trans-Epidermal Water Loss

Stratum corneum is the Latin name for horned layer and represents the outermost layer of the skin epidermis. It performs an important barrier function which protects underlying tissue from infection, dehydration, chemicals and mechanical stress. The measurement of trans-epidermal water loss (TEWL) is the most important parameter for evaluating the efficiency of the skin water barrier. TEWL is defined as the measurement of the quantity of water that passes, from inside the body through the epidermal layer to the surrounding atmosphere (via diffusion or evaporation). In healthy skin, trans-epidermal water loss

(measured in terms of water evaporation from skin surface) is low – generally < 13g/m<sup>2</sup>-h. By measuring the TEWL the skin response to cosmetic treatments may be examined. Considerable lowering of TEWL (compared to before treatment) after the use of a cosmetic product indicates that the product is occluding the skin surface. A shift from high TEWL to more normal/low values suggests that the cosmetic product is efficient in restoring the skin barrier function. On the contrary, a shift from normal/low TEWL to high TEWL suggests that the skin barrier has been damaged.

Understanding the skin is very important not only for people involved in the skin care industry, but also for the consumers that want to look after their skin. Although dermatological research has made huge advances in the past century, a lot is yet to be discovered about the skin and best ways to take care of it. Learning more about the skin will lead to treatments that are more effective for a larger number of people. Better understanding of the differences, as well as the similarities, in different people’s skin, will ultimately help consumers choose products that better suit their needs.

**EMANUELA ELIA** is the Director of Ozderm, which specialises in *in vivo* testing and clinical trials for cosmetic and personal care products. Emanuela Elia has a law degree from Rome and a Master of International Business from the University of Sydney. She had collaborated with Australia’s longest serving Contract Research Organisation Datapharm for a few years before setting up a cosmetic and personal care products testing facility in 2009. Emanuela is enthusiastic about improving the quality of cosmetic and personal care products’ research in Australia through science.

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In addition, the efficacy of the ingredient in lighting facial dark spots and improving skin dullness has been recently proven in a new clinical test

performed in Milan, Italy. This time 20 female volunteers between 43–69 years old with dark spots and dull complexion applied a cream containing 2% ingredient on half face and a placebo cream on the other half, twice a day, and spent 2–3 hours a day in the traffic. After 14 days of treatment facial dark spots, a visible manifestation of pollution damage, became lighter and skin dullness was reversed, giving a brighter complexion to the skin.

Complementary, a self-assessment evaluation questionnaire was completed by the volunteers with the majority confirming perceived changes in facial glow and a smoother skin.

Awarded in 2017 as the Best Skin Care Product for Europe in the Regional Beauty Industry Awards organized by Cosmetics Design, POLLUSHIELD™ functional ingredient can be included in cosmetic formulations seeking to provide daily anti-pollution care as well as in anti-aging products to protect skin that is sensitive or more vulnerable to ambient contaminants.

For more information, please contact Robert McPherson, Account Manager for Australia and New Zealand, at [Robert.McPherson@Lubrizon.com](mailto:Robert.McPherson@Lubrizon.com) or Tel: +61 (02) 9741 5237.

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## NEOGEN SPA – low energy 0.8joules – made for skin clinics, spas, medispas, beauty

There is a lot of chatter in the Beauty Industry about Plasma.

When we talk about plasma, the plasma pen automatically comes to mind. These pens give out a corona discharge (electrical discharge) and throw an arc from the tip of the pen onto the surface of the skin whilst other plasma devices ionize atmospheric gases to produce plasma at the tip causing charring or a skin hot spot approx 1mm in size. They are commonly used for eyelids and leave noticeable dots on the skin post treatment.

NeoGen Nitrogen Plasma Device differs from all the other Plasma devices on the market. Manufactured in the UK by Energist, NeoGen has finally arrived in Australia!

With the NeoGen Device, nitrogen plasma is formed by the combination of inert nitrogen gas and UHF energy inside the handpiece. The excited plasma energy then purges the skin of any hydrogen or oxygen atoms. (Without oxygen, you cannot burn so there is no charring or spots). The plasma is converted to thermal energy and targets the water in the skin working at, on and below the surface to modify the skin's architecture, generating new collagen and elastin fibers. Good hydration means deeper penetration. The skin remains

intact afterwards acting like a natural band aid. Skin permeability is increased for 24 hours post treatment giving the ideal conditions for absorption of topical agents. Downtime is none to minimal depending on the treatment protocol.

There are three NeoGen devices each suited to a specific market.

The NeoGen Spa is specifically aimed at Beauty and Aesthetic Clinics seeking an effective way to treat a multitude of client concerns comfortably and easily with no downtime.

The NeoGen Spa is a low energy device treating up to 0.8joules that gives a 12mm coverage per shot of pure nitrogen plasma energy. Upper and lower eyelids can be treated with no need for ocular shields or anesthetic.

There is also huge benefit to clients suffering with Acne. The Nitrogen plasma purges water from the skin. Without moisture, bacteria cannot survive making NeoGen an ideal treatment clients with active acne. It is the only device on the market not contraindicated with Accutane! It can also be used to treat clients who have had threading!

The NeoGen Spa effectively treats active acne, eyelids, dark circles, skin revitalization, photo damage, wrinkle reduction, tone and texture,

pigmentation, stretchmarks as well as viral papillomata and tooth whitening. Treatments are comfortable with minimal to no downtime. Clients can resume normal activities. The NeoGen has seven cleared FDA indications and is TGA registered.

The NeoGen Spa brings carefully controlled Nitrogen Plasma Technology to the beauty market. The user friendly graphical interface simplifies the treatment process. There are in-built repetition rates and a selection of three energy settings to choose from. Treating clients has never been easier!

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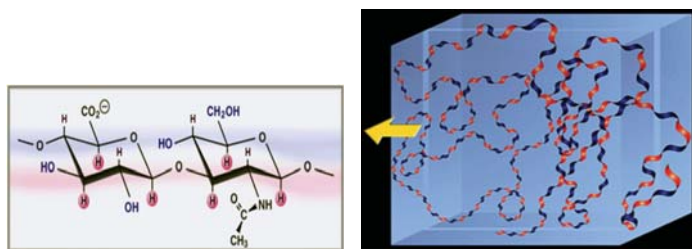
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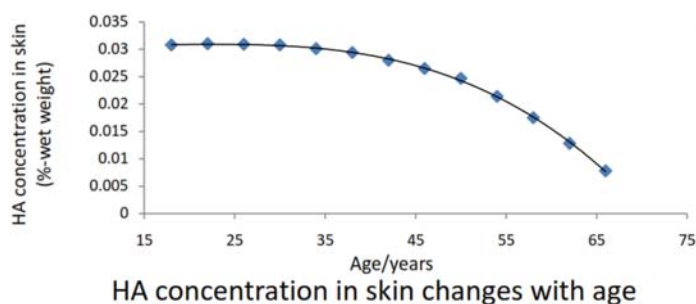
*Your Partner for Cosmetics and Wellness.*

# What is Sodium Hyaluronate?

**Sodium Hyaluronate (HA)**, is the sodium salt of hyaluronic acid. HA is a linear high molecular weight mucopolysaccharide composed by thousands of repeating disaccharide units of D-glucuronic acid (GlcUA) and N-acetyl-D-glucosamine (GlcNAc).

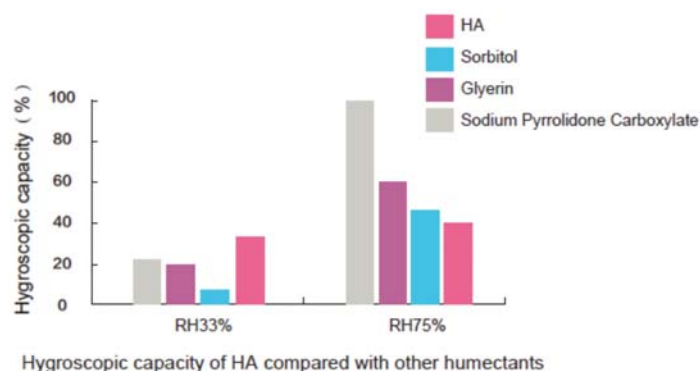


With the increase of age, the content of HA in skin gradually reduces. Because of the lack of HA, there is an appearance of skin aging, such as skin dryness, elasticity loss, fine lines, etc.



## Ideal Natural Moisturising Factor

- HA can hold water up to 1000 times its weight, so it is an ideal natural moisturising factor for the cosmetics industry.
- Compared with other humectants, HA is less effected by the environment as it has the highest hygroscopic capacity in a relatively low humidity, while also having the lowest hygroscopic capacity in a relatively high humidity.



## Functions of Sodium Hyaluronate in Cosmetics

- Moisturising
- Anti-aging
- Nutrition delivery
- Preventing and repairing skin damage
- Increasing emulsion stability
- Lubricity and film-forming properties

HA can be found in most human tissues. Skin, lung, and intestine contain more than 50% of HA in the body. HA of skin exists as filler in the extracellular matrix. There is HA both in epidermis and dermis.

## Moisturising

Compared with other humectants, the advantages of HA are as follows:

- Natural ingredient
- Non-toxic, non-irritating
- Excellent moisturising
- Non-greasy
- Won't block skin pores

## Lubricity and film forming

HA, as a high-molecular polymer, can form a breathable film on the surface of skin/hair resulting in:

- Smooth skin/hair
- Reduce the irritation of other components
- Protect skin/hair from pollutants, such as bacteria, dust, etc.

## Nourishing skin

HA is applied on the skin surface and keeps skin soft because of hydration. This can promote the absorption of other active ingredients and the excretion of useless metabolites. HA with low molecular weight can penetrate through skin and increase the moisture content of skin.

## Preventing and repairing

- Preventing and repairing skin damage by:
- Forming the hydration shell on the surface of the skin;
- Scavenging the skin radicals
- Promote epidermal cells proliferation
- Promote wound healing

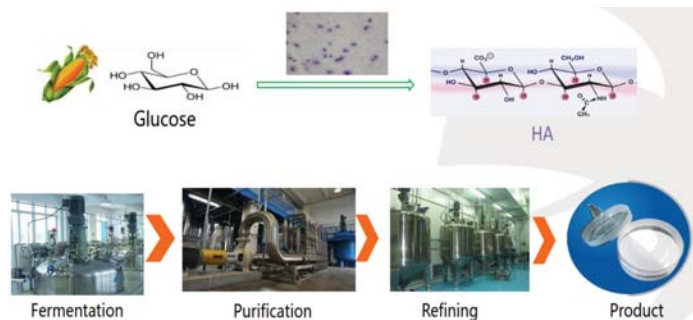


## Slow-release of active ingredients

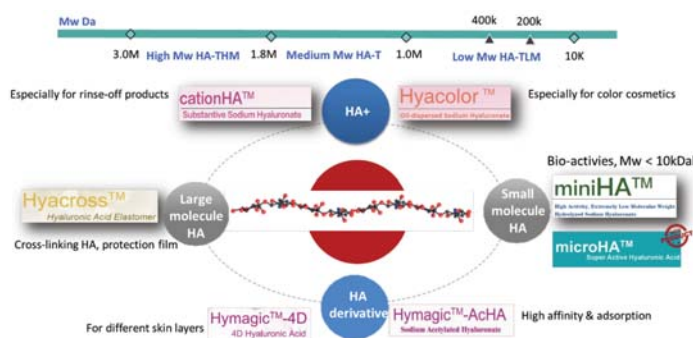
The active ingredients can be fixed in three-dimensional network structure of HA. Due to the natural enzymatic degradation of HA, active ingredients will be slowly released.

## Sodium Hyaluronate from BLOOMAGE

### Production process



### Product range

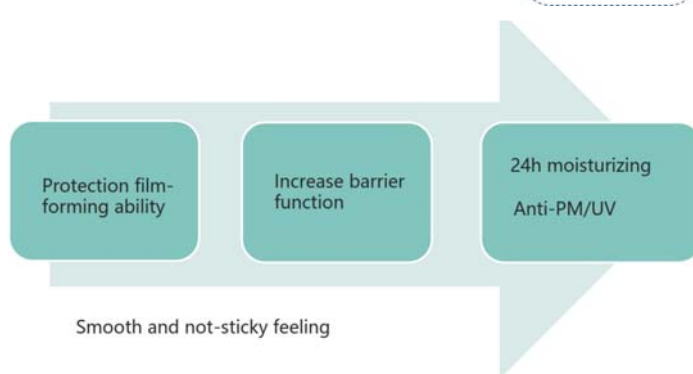
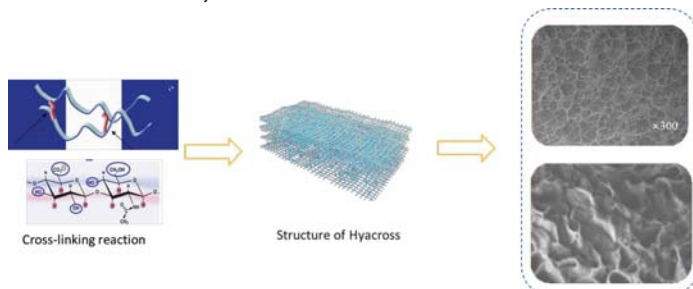


### Hyacross™

INCI name: Sodium Hyaluronate Crosspolymer

Hyacross™ is a crosslinked polymer derived from natural HA. It appears like an elastic gel with high viscosity which can form an invisible biological film on the skin surface with various effects, such as moisturising, protection, slow release, etc.

Hyacross™ behaves like a “micro reservoir” delivering water continuously to the skin



### Hybloom™

- Produced by fermentation with Non-GMO bacteria
- No animal origin material used in production
- High purity, High safety, High compatibility
- ECOCERT and COSMOC certification

### High molecular weight HA

Forms a layer of hydration film on the skin surface, reduces water evaporation of cuticle, and prevents ultraviolet invasion.

Molecular weight >1,800kDa

### Medium molecular weight HA

Long-lasting moisturising effect softens the cuticle and nourishes the skin.

Molecular weight of 1,000k~1,800kDa

### Low molecular weight HA

Penetrates the skin, nourishes the skin deeply, scavenges free radical, and stimulates the growth of cells.

Molecular weight of <1,000kDa

✓ ECOCERT Certification

✓ COSMOS Certification

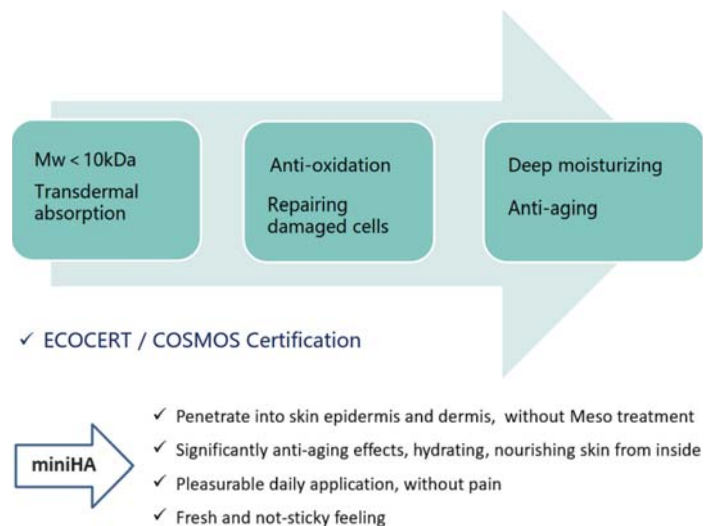


### miniHA™: PATENT

INCI name: Hydrolysed Sodium Hyaluronate

First developed Enzyme Degradation for oligo HA in the world

- Natural, green – environmentally friendly
- Complete structure, high safety and high purity

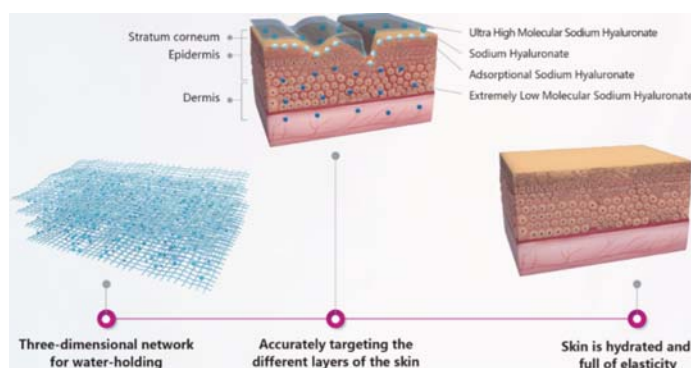
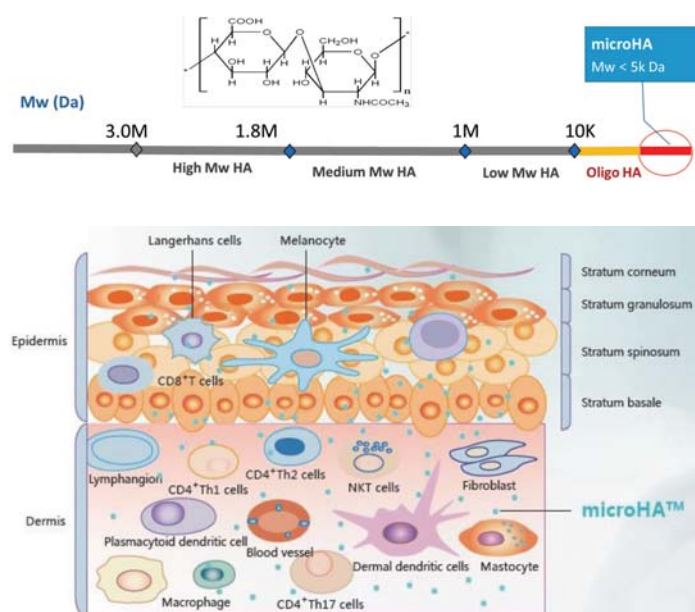


### microHA™: PATENT

INCI name: Hydrolysed sodium hyaluronate

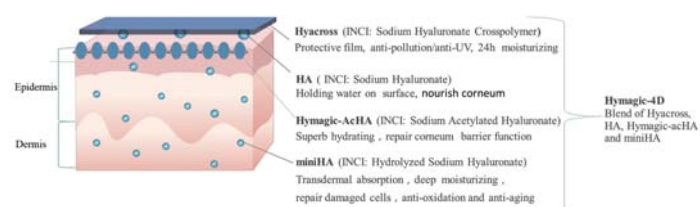
microHA (Super Active Hyaluronic Acid) is a new low molecular weight active ingredient produced by a unique enzymatic degradation technology.

microHA can quickly penetrate the epidermis and the dermis, to increase skin barrier function, reduce inflammation factor activity, protect the skin against inflammation and sensitivity caused by various stimulus.



Hymagic™-4D can build up and form a three-dimensional network and accurately target the different layers of the skin to replenish water from outside and hold water from inside.

Hymagic™-4D can keep skin hydrated continuously while improving skin moisture enhancement from inside and making skin smooth and elastic.



## Hyacolor™ & Hyacolor™ – 3D: PATENT

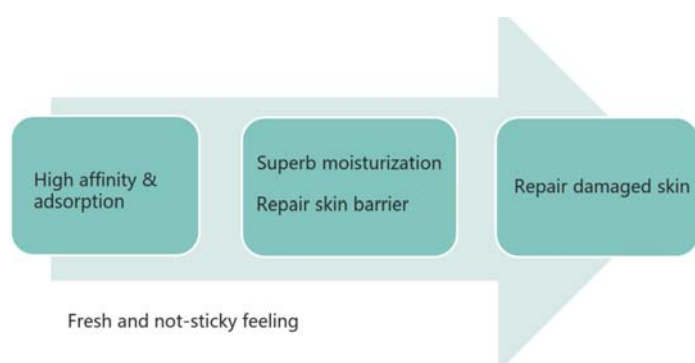
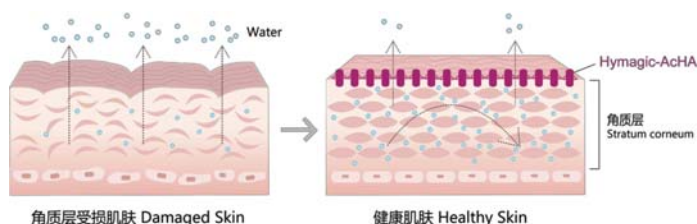
INCI name: Sodium Hyaluronate, Ricinus Communis(Castor) Seed Oil, Hydrogenated Castor Oil

Hyacolor has good skin affinity because of its lipophilic outer layer and it can easily release the inside HA molecule when applied onto the skin. The small molecule of HA will penetrate the skin quickly and nourish the skin from inside out.

## Hymagic™-AcHA

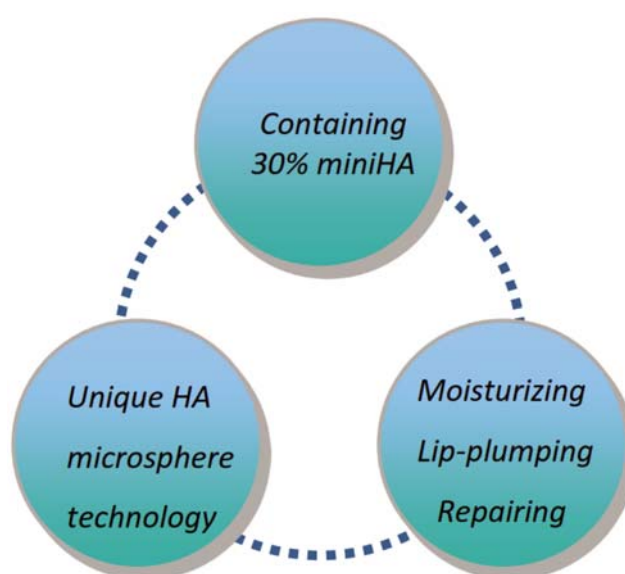
INCI name: Sodium Acetylated Hyaluronate

Sodium Acetylated Hyaluronate (AcHA), is a specialty HA derivative which is synthesised from HA by acetylation reaction. The hydroxyl group of HA is partially replaced with acetyl group; it owns both lipophilic and hydrophilic properties. This helps to promote high affinity and adsorption properties for skin.



## Hymagic™-4D (4D Hyaluronic Acid)

INCI name: Sodium Hyaluronate Crosspolymer, Sodium Hyaluronate, Sodium Acetylated Hyaluronate, Hydrolysed Sodium Hyaluronate



## cationHATM

- A moisturiser designed especially for hair care:
  - Improves the barrier function of the scalp

- Natural, mild conditioning moisturiser
- Suitable for hair and scalp care – enhancing the hydration property of the scalp
- cationHATM is a complex of cationic ingredient (guar gum or PQ-10) and HA. HA with a different molecular weight can improve the substantivity of Cationic polymer HA on the hair and skin and reduce the irritancy to the skin caused by surfactants in formulas and results in a smoother feel.
- cationHATM contains two kinds of HA:
  - Small molecular HA can easily penetrate the skin, nourish it deeply and eliminate free radicals. It also can repair damaged scalp cells and help to keep the right balance in metabolism.
  - Large molecular HA can form a flexible film, which protect hair and skin from UV damage.

Hyaluronate (HA). The applications and specifications of HA vary by product and are divided into Pharmaceutical, Cosmetic, and Food grades. In 2008, the parent company Bloomage Biotechnology achieves a listing on the main board of Hong Kong exchange market.

*Selected products have ECOCERT and COSMOS approval.*

A S Harrison & Co offers a comprehensive range of Bloomage products – for more information, starting formulations and samples please contact your A S Harrison & Co account manager or email [performanceingredients.ash@harrison.com.au](mailto:performanceingredients.ash@harrison.com.au) or call us on +61 (0)2 8978 1016

## Who is BLOOMAGE?

A S Harrison & Co are proud to be partnering with BLOOMAGE (Bloomage BioTechnology Corp., Ltd.) who were established in 1998. For the past 21 years, the company has focused its efforts on R&D, production and sales of Sodium

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IPCS



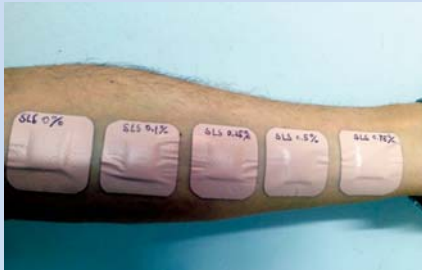
YouTube







## STEPS



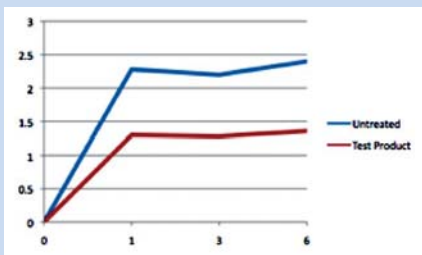
### 1. Sample preparation



### 2. Walk in stability ovens



### 2. Walk in stability ovens



### 3. HPLC analysis

## No. 11 Anti-inflammatory: Regression Test

### Measurement of the effect of anti-inflammatory formulations

#### Supportable Claims

- Reduces irritation
- Treats redness
- After Beach products

#### Steps of the Test

A mild erythema is induced, either chemically (sodium lauryl sulphate solution), or by use of a solar simulator.

The product is applied, usually post irritation, as a treatment, or prior as a preventative.

#### Measurement

The target area is normally the volar forearm or the back. The initial irritation is compared at a number of points post treatment, up to 7 days. The measurements are taken with a Minolta hand held spectrophotometer.

Colour change is plotted against time, compared with an adjoining untreated area.

Eurofins Dermatest Pty Ltd  
20 - 22 King St  
Rockdale NSW Australia  
ph 61 2 9556 2601  
[info@dermatest.com.au](mailto:info@dermatest.com.au)  
[www.dermatest.com.au](http://www.dermatest.com.au)

#### Reporting

Progression of the regression of the intensity of irritation can be plotted – usually on a daily basis.

#### For Australia

Claims may be considered (e.g. soothing effects) or therapeutic (treatment). A TGA consultant should be contacted in order to check the categorisation of your intended claim.

#### For Europe

E.U. support for claims as required under E.U. Guidelines for Claim Substantiation.

#### USA

Similar to Australia. A regulatory consultant should be contacted in order to check the categorisation of the intended claim.

#### References

1. Investigation of the Anti-Inflammatory Potential of Aloe Vera Gel in the Ultraviolet Erythema Test

Reuters J. et al Skin Pharmacol Physiol 2008; 21:106-110

2. On the Course of the Irritant Reaction after irritation with sodium lauryl sulphate  
Gloor M., Senger B., Langenauer M., Fluhr J.

3. Skin Research and Technology  
Volume 10, Issue 3, 144–148, August 2004

# Prepare to be surprised –

patents can provide more commercial advantages than you think

by Gint Silins



At the end of the day, businesses seek patent protection for their innovative products (or processes) to secure a greater commercial advantage, usually with the understanding that a patent may help deter others from making, selling or using that product. However, patents/patent filings may provide other commercial advantages that may be just as important or even more important. Some of those less appreciated advantages will be briefly addressed in this article.

I can almost guarantee that some of the less appreciated advantages mentioned in this article will surprise you, and that after reading this article you will appreciate that patenting can be more important than just a means for protecting an innovative product (or process).

## Reduce competition

Generally speaking, if you have patented a product then you can stop

others from making, selling or using that product. Without patent protection there is nothing to stop others from competing with you in the marketplace in respect of the same or similar product.

## Charge a higher price

Having a legal right to stop others from competing with you in the marketplace means that you have an opportunity to charge a premium price for the product.

## Scare off competitors

You don't need a granted patent to scare off competitors. The mere act of filing for patent protection can disincentive others from producing or selling a competing product. The warning 'Patent Pending' on your product label or website will usually make others think twice before developing, commercialising or selling a competing product.

## Buy time to conquer the market

Although there are exceptions, who in their right mind would risk bringing a competing product to market if they were aware of a patent filing covering that product?

Potential competitors who seek advice from a patent attorney will be spending quite a lot of money for that advice, and in some instances an attorney may

not be able to provide clear-cut advice on patent infringement until a patent has been granted some years down the track. For example, although there are exceptions, the contents of a patent application usually remain secret/unpublished for the first 18 months, so the attorney can't see what protection is being sought. Eighteen months later, after publication of the patent application, the attorney may not be able to provide a definitive answer on patent infringement until a patent has actually been granted (or the patent application has been abandoned). It usually takes years before a patent is granted (or abandoned). Bearing these things in mind, potential competitors often comment: "I can't wait years for an answer on patent infringement. I can't afford to sink money into a product that I may not be able to take to market, so I'll pursue a different product."

## Enjoy both trade secret status and patent protection at the same time

Sometimes businesses believe a product will be a commercial success but are not convinced that patent protection is the best way of protecting the product. Generally speaking, if the product can be reverse engineered (based on the product label's ingredient list and/or analytical means), then keeping the product's composition a trade secret will be short lived. The only option for long term protection may be to seek patent protection.

The content of patent applications/granted patents in most cases is not normally disclosed to the general public until about 18 months after the initial filing date. Hence, you can enjoy both patent protection and trade secret status for your product's composition for up to 18 months. During that time you can evaluate whether to continue with the patent application or to continue to 'protect' the product's composition as a trade secret (in so far as that is possible). A patent application can be withdrawn prior to its contents being disclosed (published) to the general public, in which case the product can remain a trade secret.

Please understand that a trade secret can only 'protect' a product's composition as long as the product's composition cannot be reproduced by others.

## Good marketing

One will naturally be impressed when learning that a patent has been applied for or granted for a product. A product that has been patented or is 'patent pending' tends to be viewed as being something innovative compared with other products in the marketplace – it has an innovative point of distinction. That view might be taken by the general public and/or retailers. Note that this advantage does not kick in only after a patent has been granted, it normally kicks in the day you label your product with 'patent pending', the day a patent application is first filed.

## Product credibility

Patent protection also tends to give the product credibility. This may influence others to buy the product.

## Government grants and funding

Government grants and funding offered to businesses for developing or commercialising technology often have the requirement that patent protection first be sought for that technology. Usually a patent application filed for the technology will suffice. A granted patent for the technology is not usually required.

## Reimbursement of patenting costs

Patenting costs relating to export of the product may to some extent be reimbursed by the Australian Government. For example, the Export Market Development Grant scheme is a Government financial assistance program for aspiring and current exporters.

## Attracting and securing commercial partners

Some businesses need commercial partners, for funding, greater distribution reach etc. With regards to funding, potential commercial partners are more likely to sign off on a deal if patent protection has been sought or secured for that product. If no protection, it is open to copying by anyone, including the potential commercial partner itself.

With regards to distributors, agents and retailers, these may only be interested in dealing in unique products that can't be sold by others or found elsewhere (ie. exclusive rights).

## Raising capital

If this is your goal, I can almost guarantee you that one of the first questions from the mouth of a potential investor will be: "What kind of IP protection do you have for the product?"

## Business asset

A patent/filing is a business asset. When selling your business or looking for a







partner, it could add value to your business (as would a registered trade mark).

### **Inclusion on patent databases**

When patent protection is sought for a product, ultimately details of the product, the patent owner and inventor are made available on various patent databases around the world. This can assist in making your business activities known to interested parties who might wish to purchase your product or form a business relationship. In other words, it amounts to almost world-wide advertisement.

### **Revenue from sale or licence**

Many Australian businesses have an Australian-centric view with regards to protection of their product. This is usually because they only plan to sell the product in Australia. However, most of the hard work has been done, so why not capitalise on it?

Patents filed or obtained in other countries can be sold to others, thereby generating additional income. Such

filings/patents can also be licenced to others, hence producing an additional revenue stream over the life of the patent (usually up to 20 years). With regards to licensing, usually there is an upfront payment and then a royalty is paid (perhaps annually) over the life of the patent.

Just because you are not in a position to sell the product yourself in other countries does not mean that you should not seek patent protection internationally, for example, initially by way of a PCT application (covering more than 150 jurisdictions). It could be that you could sell or licence rights in one or more of those countries and stipulate that the licensee pay ongoing patenting costs.

Potential additional revenue streams? You would be crazy not to consider it, particularly if you believe that your product is innovative and is likely to be commercially successful.

### **Revenue from third-party product improvements**

It could be that others will improve

on your product and seek to sell that improved product commercially. They could even patent the product improvement. It could be that the improved product may outsell your product. If, however, the improved product falls within the scope of your patent, then you have recourse to stop them from selling it or you could licence your patent to them and, in this way, secure an additional revenue stream over the life of your patent.

### **Marketing yourself**

Finally, being named as an inventor or owner of a patent/filing can impress others, and could help with career advancement.

Take-home message: Filing a patent application may provide marketing and financial advantages over a number of years whilst patent rights remain pending, regardless of whether or not a patent is actually granted.

*This article is intended to provide general information only and the contents should not be relied upon as legal advice for any specific case.*

# NICNAS REFORMS . . .

# OMG!

by Wendy Free

Deep breath!

Ok, (SIGH), **I can do this . . . we can do this . . .** (*ludicrous maniacal, crazy laugh . . . that ends in tears . . . we cannot do this . . . sobs*)

## Executive Summary

Consideration of **Proposed changes to NICNAS (Regulatory Reforms<sup>1</sup>)**

- NICNAS Industrial Chemicals Bill 2017<sup>2</sup> (now deferred to 1st July 2020)
- And
- Industrial Chemicals (General) Rules 2018<sup>3</sup> (also deferred)

*As it pertains to imported cosmetics & cosmetic ingredients*

*. . . It looks like a 180° turn around, you (as the introducer) do all the assessments and then tell them about it.*

## IMPORTANT: DO NOT RELY ON THIS INFORMATION

it is a high level summary of key aspects of the first draft of a bill which has not yet been passed into law.

But be warned ( . . . **yes they ARE serious**)

## Basic Changes:

- AICS will renamed the Australian

Inventory of Industrial Chemicals (AICIS).

- AACN will be the term for an AICIS approved chemical name
- *Not all new chemicals* will require NICNAS assessment, some can be 'exempt' or 'reported'; based on usage levels and human + environmental (GHS etc) data; however record keeping requirements will still apply. *Its all looking good so far isn't it?*
- Where medium-high risk substances are neither exempt nor reported, they will require an assessment certificate

In regards to **animal testing**: where the ingredient is solely for cosmetic use; a person must not use animal test data obtained from tests conducted on or after 1 July 2018<sup>4</sup>.

## THE HIGHLIGHTS

**It is proposed that** there will be six categories of introduced chemicals;

- Listed (included in AICIS)
- Exempt – Substances classified as VERY LOW RISK to human health & the environment; and Direct export, Solely R&D<sup>5</sup>, existing listed polymer, comparable to specified existing listed chemical, polymer of low concern,



biopolymer of low concern

- Reported – Substances classified as LOW RISK and/or Has been internationally assessed for human health & environment, “nano-scale solely in R&D”.
- Assessed – medium to high risk, requires pre-introduction report under section 34 of rules + supply of data for assessment
- Commercial evaluation and
- Exceptional Circumstances

## Annual declarations:

- For exempted introductions the declaration will indicate the volume

of introductions under this category that occurred during the registration year. It will not involve provision of information on individual exempted introductions.

- For reported introductions the one

declaration covers all introductions for that year and is a confirmation of continued compliance. It does not involve provision of information or separate declarations against each chemical introduction.

NICNAS has indicated that the minimum fees currently applicable to applications will not apply (but has not indicated if new, additional or enhanced fees will apply to various categories or introducers).

#### Determining the Introduction Category (example only based on DRAFT CATEGORISATION GUIDELINES)

Human Health (note these are examples ONLY <sup>6</sup> )		Exposure Band		
		2 eg Cosmetics <10 kg/pa & >0.1% or <1% or >10kg but <100kg	3 eg Cosmetics > 100kg/pa	
Hazard Band	1 eg Cosmetics <10 kg/pa & <0.1%			
	Not A, B or C	VERY LOW RISK	VERY LOW RISK	VERY LOW RISK
	A Low Risk ie GHS irritating	VERY LOW RISK	LOW RISK	LOW RISK
	B Medium Risk ie sensitiser or corrosive	VERY LOW RISK	LOW RISK	MEDIUM TO HIGH
	C High Risk ie carcinogenic	MEDIUM TO HIGH	MEDIUM TO HIGH	MEDIUM TO HIGH

Environmental Risk (note these are examples ONLY)		Exposure Band			
		Release is an end use that includes intentional release during use to land, biota, natural waterways or municipal water supplies; intentional release to air during use (other than solely domestic or personal use); fire-fighting, offshore drilling.			
Hazard Band	1 <10kg + no release	2 10 -1000kg + no release	3 >1t & <10t + No release	4 >10t or Release*	
	Not A, B, C or D	VERY LOW RISK	VERY LOW RISK	VERY LOW RISK	VERY LOW RISK
	A eg harmful to aquatic life, bioaccumulation, contains Al, Cr, Cu, Ni Se Ag or Zn, cationic polymers	VERY LOW RISK	VERY LOW RISK	LOW RISK	LOW RISK
	B toxic to aquatic life	VERY LOW RISK	LOW RISK	LOW RISK	MEDIUM TO HIGH
	C Very toxic to aquatic life, persistent and bioaccumulative	LOW RISK	LOW RISK	MEDIUM TO HIGH	MEDIUM TO HIGH
	D persistent, bioaccumulative and toxic; ozone depleting, contains as, Cd, Pb or Hg, endocrine mode	MEDIUM TO HIGH	MEDIUM TO HIGH	MEDIUM TO HIGH	MEDIUM TO HIGH

Introduction Category		Human Health		
		LOW RISK	MEDIUM TO HIGH	
Environmental Risk	VERY LOW RISK	EXEMPT	REPORTED	ASSESSED*
	LOW RISK	REPORTED	REPORTED	ASSESSED*
	MEDIUM TO HIGH	ASSESSED*	ASSESSED*	ASSESSED*

\* exceptions apply.



## Record Keeping Requirements

### Listed

- CAS and AACN
- Common / commercial Name
- Demonstrable compliance in regards to scope, conditions and specific requirements.

### Exempt

- CAS and AACN
- Common / Commercial Name
- Records to indicate that it is correctly exempted (sections 19, 20, 21 and 44 +/- 45 of the rules)

### Reported

- CAS and AACN
- Common / Commercial Name
- Records to indicate that it is correctly classified as reported (section 20)
- Records supporting compliance (sections 47, 48 +/- 49)
- Where relevant records pertaining to nano (section 50) and other circumstances (section 51)
- \*\*\*\*\*Plus pre-introduction report to NICNAS\*\*\*\*\*

### Assessed

(Commercial evaluations & exceptional circumstances)

- CAS and AACN
- Common / commercial Name
- Demonstrable compliance in regards to scope, conditions and specific requirements.

## WHAT THIS MEANS FOR YOU

If you are 'up with' EU's REACH<sup>7</sup> and are GHS<sup>8</sup> established this is only going to be a major inconvenience for you're your business . . . for everyone else . . . (See table below.)

## OBSERVATIONS . . .

- As before the system is based on CAS; and has been designed for essentially pure substances and does not necessarily consider or apply well to pre-mixes or formulated products.
  - The information published thus far appears to indicate that the vast majority of new cosmetic ingredients will be either exempt or reported. While this means shorter regulatory lead times and apparently fewer fees it does increase the obligation of each of the introducers to ensure that they locate, assess, hold and maintain all of the relevant data.
  - While a multitude of international resources have been considered, some regulations specific to Australian circumstances such as SUSMP and weapons/drug precursor chemicals etc have still not been considered.
  - There are some aspects of reporting, especially for chemicals that are 'released' that will be difficult to comply with, including for example notification of the specifically effected waterways.
- Look at the NICNAS REFORMS page 10
- Plan the countdown, you have less than 17 months (around 70 weeks . . .)
- Look at your FULL formulations and being classifying
- Set up a documentation management system that will handle your reporting obligations
- It's a savage blow to importers, who up until now had it "fairly easy" compared with their "Australian made" counterparts.
- I really don't know what to say . . . I've been stewing on this for months . . . perhaps its time to face the savage reality.
- Sincerest condolences,

## MY ADVICE

Find a new career now! Either in a simple field like rocket science or brain surgery . . .

or perhaps challenge yourself as a paper shuffler/crystal ball gazer who's compliant with the incoming NICNAS reforms.

- Look at the NICNAS REFORMS page 10
- Plan the countdown, you have less than 17 months (around 70 weeks . . .)
- Look at your FULL formulations and being classifying
- Set up a documentation management system that will handle your reporting obligations

It's a savage blow to importers, who up until now had it "fairly easy" compared with their "Australian made" counterparts.

I really don't know what to say . . . I've been stewing on this for months . . . perhaps its time to face the savage reality.

Sincerest condolences,

### Wendy

Mrs Wendy Free B.Sc M.Tech Mngt  
MASM MRACI FAOQ  
Quality Matters Safety Matters Pty Ltd  
talktous@qualitymatterssafety matters.  
com.au

I am...	My take
Consumer	Your products may well be far more expensive from now on....
Small importer of cosmetic ingredients	Oh dear, I hope that your suppliers are up with GHS <sup>9</sup> and can supply you with GHS compliant SDS for <u>EVERY constituent of every ingredient</u> , and that you like paperwork?
Large Importer of cosmetic Ingredients	***%\$#@!!!!*** Oh dear, I hope that your suppliers are up with GHS and can supply you with GHS compliant SDS for <u>EVERY constituent of every ingredient</u> , and that you like lots of paperwork?
Importer of ingredients that can be used in medicines as well as cosmetics	Time to give the crystal ball a polish I'm thinking...
Small importer of finished cosmetics	Oh dear, perhaps time to retire?...this is NOT what you signed up for I hope that your suppliers are up with GHS and can supply you with GHS compliant SDS for EVERY constituent of every product, and that you like paperwork?
Large importer of finished cosmetics	UNIMAGINABLE
Importer of perfumes, flavours and fragrances	Sorry no idea...maybe ask NICNAS?
Cosmetic Chemist & Manufacturer	I'm guessing that the supply of 'low regulatory burden, natural, new & innovative' ingredients is going to slow down....(no more 'mystery magic ingredients' ? <u>except on the black market?</u> ); & you're going to have to become more familiar with GHS...



## References

- 1 <https://www.nicnas.gov.au/reforms>
- 2 [https://www.aph.gov.au/Parliamentary\\_Business/Bills\\_Legislation/Bills\\_Search\\_Results/Result?bId=r5885](https://www.aph.gov.au/Parliamentary_Business/Bills_Legislation/Bills_Search_Results/Result?bId=r5885)
- 3 [https://www.nicnas.gov.au/\\_\\_data/assets/pdf\\_file/0011/65684/Industrial-Chemicals-General-Rules-2018-Exposure-Draft.pdf](https://www.nicnas.gov.au/__data/assets/pdf_file/0011/65684/Industrial-Chemicals-General-Rules-2018-Exposure-Draft.pdf)
- 4 This is the date allocated in the first draft, it may be changed in the subsequent delayed draft.
- 5 EXCLUDES Samples for future commercial opportunity.
- 6 Sunscreen agents (UV filters) are medium high risk, as are substances for use in personal vaporisers.
- 7 [http://ec.europa.eu/environment/chemicals/reach/reach\\_en.htm](http://ec.europa.eu/environment/chemicals/reach/reach_en.htm)
- 8 <https://www.safeworkaustralia.gov.au/doc/globally-harmonised-system-classification-and-labelling-chemicals-ghs-information-sheet>
- 9 <https://www.safeworkaustralia.gov.au/doc/globally-harmonised-system-classification-and-labelling-chemicals-ghs-information-sheet>



## World class skincare is our business

We develop and manufacture diverse, innovative skincare products for Australian and International brands to the highest ISO22716 standards.

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# sunscreen highlights by John Staton

## Crystallising Sunscreen Formulations

Perhaps now the greatest cause of SPF failure in sunscreen testing, the growth of crystals of actives in sunscreen formulas has become more prominent for reasons set out below. Oxybenzone, 4-Methylbenzylidene camphor and Avobenzone and Diethylamino

Hydroxybenzoyl Hexyl Benzoate (Fig 1) are examples of commonly used active UV absorbers, which are all solids and thus need to be well dissolved in the sunscreen formulation. They will not function as solids in solution, or in the thin film applied to the skin. In order to

perform their protective function, they need to be kept in solution not only in the formula itself, but also right up to the point of product dry down on the skin following application.

The three main reasons for an apparent increase in incidence of this issue are...

### Higher SPF

The first reason for this resulting lack of efficacy is the move to higher SPFs, which typically requires the inclusion of higher levels of these crystalline actives. The most commonly seen crystals in samples we examine in our laboratory are Avobenzone, as it is the most commonly used UVA absorber. In SPF 50 sunscreens, up to 5% is needed in order to active the now required UVA balance – Broad Spectrum for Australia, for example.

### Formulation Elegance

A second reason for crystallisation becoming more prominent as an issue is the trend towards more aesthetic appeal in the formulation. Typically, this involves the use of lower levels of the oils and esters which are needed to act as solvents for the solid actives.

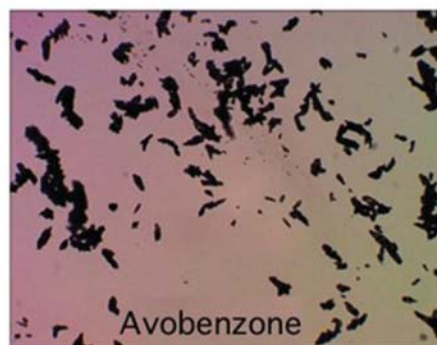
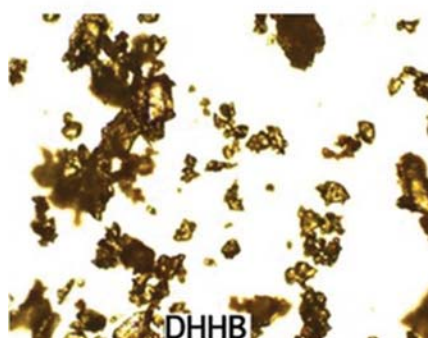
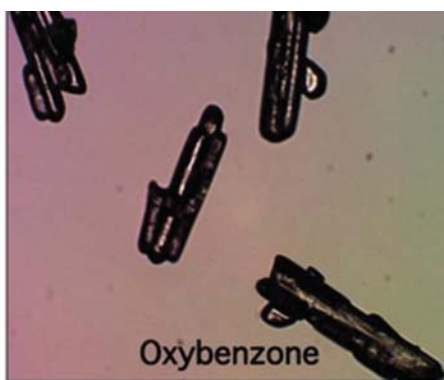
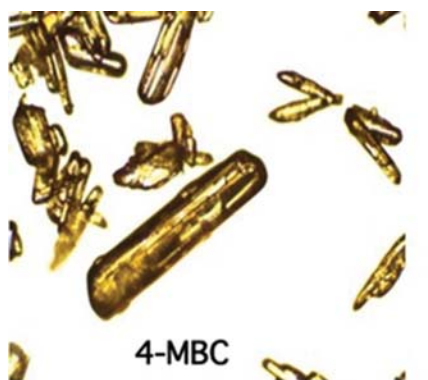


Fig 1 Examples of crystal shape of UV Actives



## Use of more “Natural” excipients.

If synthetic esters have been replaced by fixed oils, then, as these are almost universally poor solvents for the actives. Heating will help during manufacture, but precipitation on cooling is very likely. For example, 5% Avobenzone would require at least 60 % of Fixed Oil to be solubilised. Fig 2 is an example of this effect.

## Solubility in other Actives

Among the best solubilisers are other sunscreen actives – Ethylhexyl salicylate, Homosalate and Ethylhexyl Methoxy cinnamate. These can have around 4 to 5 times as much solubilising capacity as fixed oils, but for each percent of solid active, at least 2 or 3 times as much “solvent” is needed.

## Challenge the Formula

There are several steps that can be taken to screen formulations before sending for solar testing. The first is temperature looping – fridge to 40°C for 4 or 5 cycles. The second is to prepare the formulation **without** the water phase and place in the fridge overnight. Then check microscopically.

Several suppliers of cosmetic emollient esters provide guidance on the solubility of specific actives in their cosmetic

excipients. Often, a mix of these will work better.

Figure 2 shows an example of this ingredient as it has precipitated from a sunscreen lotion.

Fixed Oils and silicones are particularly poor solvents for these actives.

Apart from when the formulation includes high levels of inorganic actives or other oxides, it is usually easy to identify which active/s are at issue.

Crystallisation is not just an issue for actives that have been in long term use. The manufacturer of Bemotrizinol has reported (1) the challenge of including more than around 3 percent of this newer active in sunscreen products.

The advice of this author is to invest in microscope for the R & D lab. It is surprising how many labs do not use this cost effective tool. This simple check can reduce the disappointment when SPF testing does not reach expectations.

## Reference

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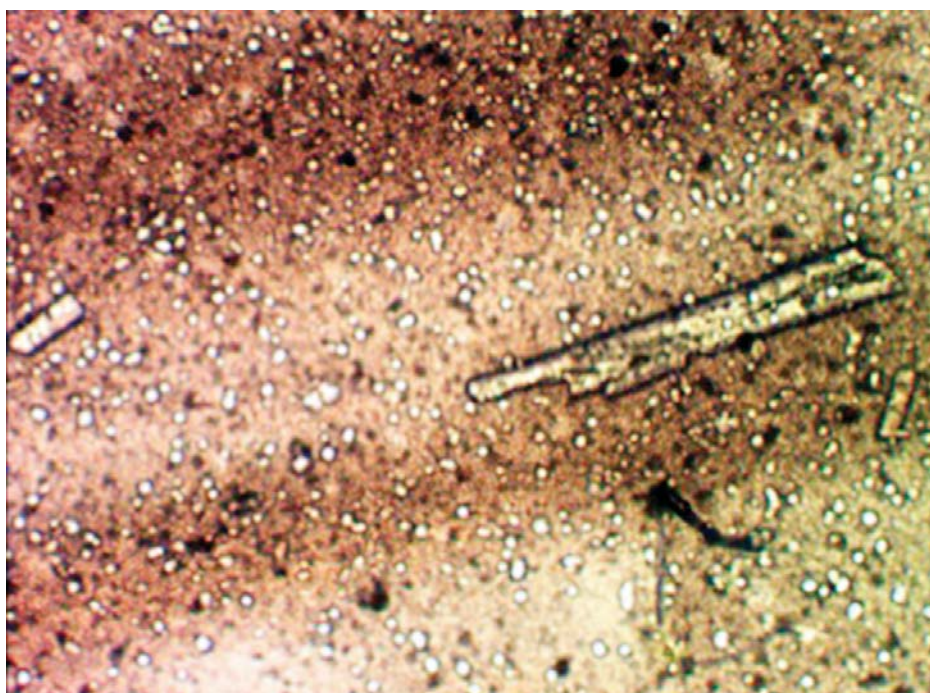
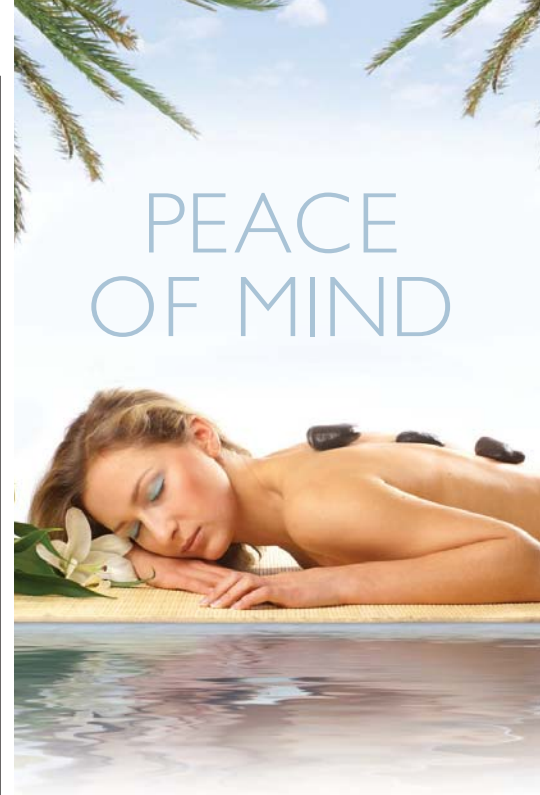


Fig 2. Crystal Growth in Sunscreen based on fixed oil.



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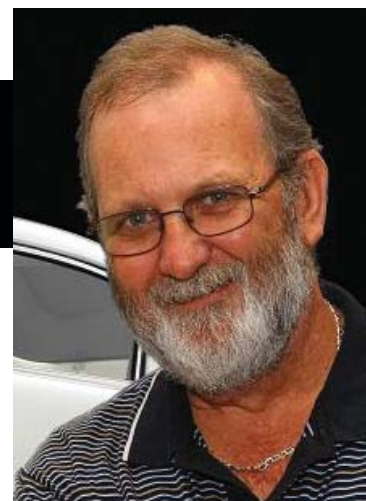
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# formulator's forum

## Part 44 –

# Acne



by Ric Williams

### What is acne?

Acne (Comedones) is a very common skin problem that usually begins to occur around puberty, although a mild form can be found in infants. When your skin becomes greasy, its pores can be blocked by high molecular weight oils or waxes, possibly followed by an infection in the blocked pore, forming whiteheads, blackheads, pimples and sometimes cysts. Acne (Comedones) can occur in adults, however this is usually formed by other factors including the action of cosmetics that comprise comedogenic ingredients.

Acne is mainly seen on the face, neck, back, chest and shoulders.

### What causes acne?

Both young men and young women, around the onset of puberty, have more male hormone (testosterone). This hormone increases the production of oil from the sebaceous glands in the hair follicles on your face, neck, back, chest and shoulders. This excess oil can cause the pores to become blocked. Bacteria grow in the trapped oil and form a fatty substance that can irritate your skin. This creates comedones.

In adult acne the comedogenic oils and waxes from cosmetics are the primary cause rather than the oils from sebaceous glands.

Acne can result in several different types of skin lesions.

Lesions not associated with inflammation include:

- blackheads (also called open comedones) – open pores

clogged with sebum (skin oil) and dead skin cells; and

- whiteheads (also called closed comedones) – closed pores clogged with sebum and dead skin cells.

Inflammatory lesions include:

- papules – small, tender, red skin bumps;
- pimples (also called pustules) – small, tender, red skin bumps with pus at the tip;
- nodules – painful, hard lumps beneath the skin's surface; and
- cysts – inflamed, painful, pus-filled lumps beneath the skin's surface due to inflammation deep in the hair follicle.

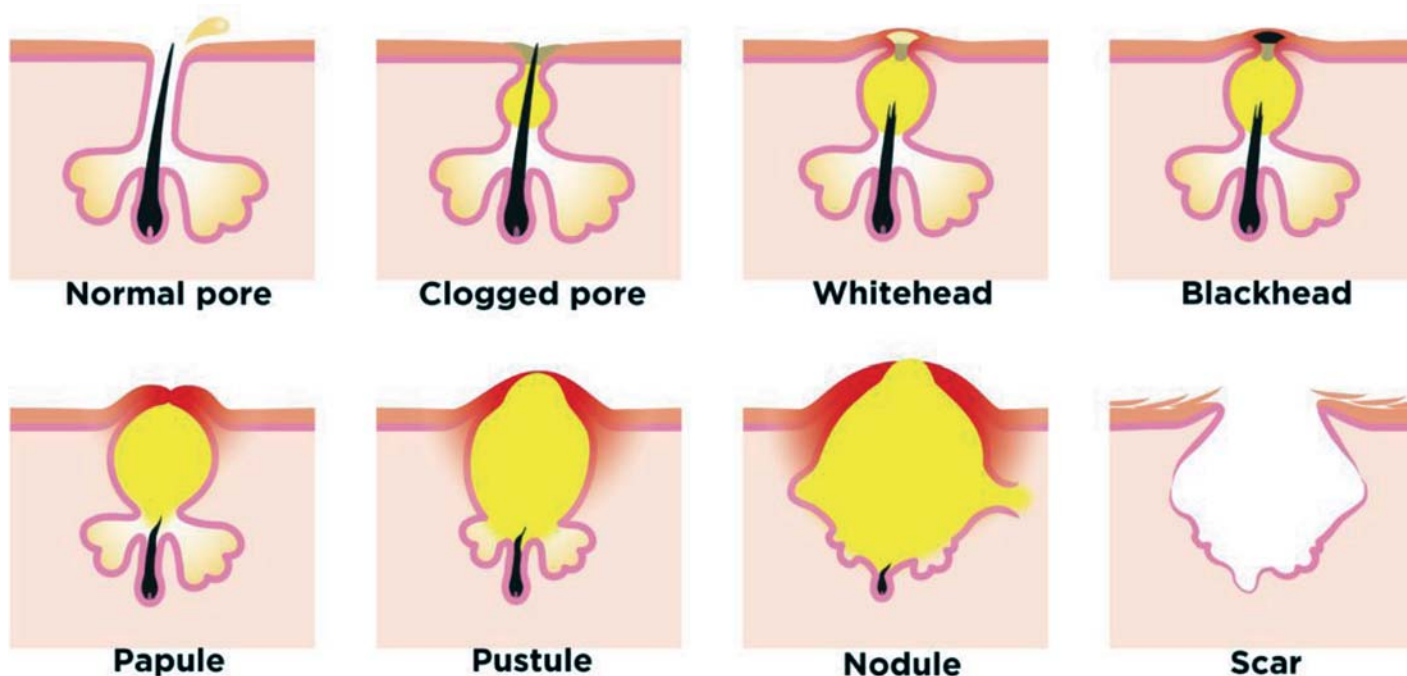
### What can make acne worse?

- Hormonal changes in women associated with the menstrual cycle (often resulting in acne breakouts around the time of a period).
- Stress.
- Taking certain hormonal contraceptives. Progestogen-only contraceptive pills and devices, as well as combined oral contraceptive pills ('the pill') that have a high dose of levonorgestrel tend to aggravate acne.
- Taking some medicines, such as corticosteroids, lithium and some anti-epilepsy pills. Anabolic steroids can also aggravate acne.
- Being in humid environments, including saunas, and working in hot, humid places or with oil and grease.
- Using oily cosmetics, creams, lotions or sunscreens that contain highly comedogenic ingredients.
- Contrary to popular belief, acne is seldom made worse by

**Ric Williams** B.Sc. Dip.Env St.

*Cosmepeutics International*

This column is intended not only as an education tool for non-technical people or beginners in our industry, but as a forum for those wishing to enlighten all about recent technology advances and new ideas. I hope experienced scientists will also contribute to this ideal and if you wish to do so please email me at: [ric@cosmepeutics.net.au](mailto:ric@cosmepeutics.net.au) and I will publish your comments.



food. Some studies have indicated that carbohydrate-rich foods, dairy products, and possibly also chocolate may make acne worse.

No special diets are necessary, although a balanced, healthy diet will help.

- It is not made worse by greasy hair, hair on the face and swimming pools.
- It is not infectious (catching) and cannot be 'scrubbed away' by keeping the skin excessively clean.

## What topical treatments are available?

### *Benzoyl peroxide*

Benzoyl peroxide cream or gel is anti-bacterial on the skin and can reduce inflammation. It is an exfoliant that works by a keratolytic action. Benzoyl peroxide is often used in combination with an antibiotic formulated for use on the skin and prescribed by your doctor.

The down side with Benzoyl Peroxide is that it makes skin more susceptible to sunburn. Therefore extra care must be taken in sunlight when you are using Benzoyl Peroxide.

### *Salicylic acid*

Salicylic Acid is a beta-Hydroxy Acid and anti-acne preparations containing salicylic acid are also exfoliants that works by a keratolytic action.

### *Retinoids*

Vitamin A-based (retinoid) creams or gels, are also keratolytic and can remove dead skin cells from the skin's surface, unblock pores and prevent re-blocking of pores. They can also reduce inflammation, although some find that retinoids can be very irritating.

They also make skin more susceptible to sunburn and should not be used around pregnancy.

### *Azelaic acid*

Azelaic acid lotion or gel is a keratolytic that also helps remove dead skin cells and reduce inflammation, and is usually

put on once or twice a day, depending on tolerance.

They also make skin more susceptible to sunburn and should not be used around pregnancy.

### *Topical antibiotics*

Antibiotic liquids or lotions (prescribed by a doctor or pharmacist) can help if you have Inflammatory lesions, but do not help when you have Non-Inflammatory lesions. They reduce inflammation and are applied once or twice a day to affected areas. The liquid can be very drying.

Topical antibiotics include clindamycin and erythromycin.

## Adult Acne

Now because the treatment of acne is considered a therapeutic action, I will stop there on the subject of adolescent acne as a therapeutic and move to the cause of adult acne, as eluded to earlier.

The same causes of adolescent acne apply to adult acne, with the exception of adolescence, such as

- Hormonal changes in women associated with the menstrual cycle (often resulting in acne breakouts around the time of a period).
- Stress.
- Taking certain hormonal contraceptives. Progestogen-only contraceptive pills and devices, as well as combined oral contraceptive pills ('the pill') that have a high dose of levonorgestrel tend to aggravate acne.
- Taking some medicines, such as corticosteroids, lithium and some anti-epilepsy pills. Anabolic steroids can also aggravate acne.
- Being in humid environments, including saunas, and working in hot, humid places or with oil and grease.
- Using oily cosmetics, creams, lotions or sunscreens that contain highly comedogenic ingredients. It is this last cause that most concerns cosmetic chemists as this is something we can do something about. See Comedogenicity below.



On its own, acne does seem to go away with age. According to one study, acne becomes less common after age 44. And for some women, acne ends with menopause. However, there are some techniques that can be employed;

## Treatments

Treatment of adult acne is as per adolescent acne, with the use of exfoliants (skin peels) usually effective.

Wash your face twice a day and after sweating, using a *mild cleanser and warm water* – not hot water. *Do not scrub* your skin as that can worsen acne.

Look for oil-free makeup, sunscreens, and other skin products.

Powder cosmetics instead of cream foundations are also recommended. For those who want to use a foundation, it is recommended to use oil-free liquid silicone matte foundations, such as those containing dimethicone or cyclomethicone.

## Comedogenicity

Is the study of materials (or formulations) that cause comedones (or adult acne). To determine this effect, and if it passes, then this may allow the claim “Non-Comedogenic”. Common comedogenic materials are emollients and include;

### Highly Comedogenic (4-5/5 or 3/3):

Isopropyl Palmitate, Acetylated Lanolin, Oleyl Alcohol, Octyl Palmitate, Isostearic Acid, Butyl Stearate

Linseed Oil, Olive Oil, Cocoa Butter, Oleic Acid, Coal Tar, Isopropyl Isostearate, Squalene, Isopropyl Myristate,

### Moderately Comedogenic (3-4/5 or 2/3):

Decyl Oleate, Sorbitan Oleate, Myristyl Lactate, Coconut Oil, Grape Seed Oil, Sesame Oil, Jojoba Oil, Hexylene Glycol, Tocopherol (Vitamin E), Most D & C Red Pigments, Peanut Oil, Lauric Acid

### Mildly Comedogenic (2-3/5 or 1/3):

Corn Oil, Safflower Oil, Lauryl Alcohol, Lanolin Alcohol, Glyceryl Stearate, Lanolin, Sunflower Oil, Avocado Oil, Macadamia Oil, Paraffin Liquid, Petrolatum, Silicones

*\*Notes:*

*Mildly comedogenic ingredients are generally not a problem when used in diluted concentrations.*

*All oils appear to have some degree of comedogenicity although some may be in the non-comedogenic category with values of 1/5.*

### Non Comedogenic (0-1/5 or 0/3):

Water, Salts, Oils Surfactants and most Actives stating to be non-comedogenic (with proof).

As you can see ingredients that have higher molecular weight components, those with high levels of saturated fats or those that have branched chain molecules, tend to have higher Comedogenic ratings. This is because ingredients that have higher molecular weight components, those with high

saturated fats or those that have branched chain molecules tend to solidify when exposed to oxygen forming solid “plugs” that can block pores. As from above blocked pores are the precursor to the formation of unsightly acne.

## Formulation

The obvious strategy, to create a “Non-Comedogenic” product is to minimize ingredients that have higher comedogenic ratings.

Oil-free cosmetics is another avenue to explore.

There are also active ingredients available that can treat acne prone skin or minimise oil secretion of skin. Some of these are;

Water (Aqua) – Butylene Glycol – PEG-60 Almond Glycerides – Caprylyl Glycol – Glycerin – Carbomer – Nordihydroguaiaretic Acid – Oleanolic Acid  
Plant / Synthetic  
Holistic treatment of acne-prone skin

Epilobium Fleischeri Extract

Outstanding sebum regulation capacity (inhibition of 5 $\alpha$ -reductase), reduces the size of pores and oily appearance of skin, anti-inflammatory (inhibition of IL-1 and IL-8). Antimicrobial and antiseptic, anti-inflammatory, antioxidant.

Hydrolysed Soy Protein & Propylene Glycol

Biotechnology / Plant  
Treatment of combination skin

Hyssopus Officinalis Extract

Antimicrobial and antiseptic, anti-inflammatory, antioxidant.

Water & Hydrolysed Milk Protein & Propylene Glycol

Biotechnology / Milk  
Balance of sebaceous activity

Argania Spinosa Kernel Extract, Serenoa Serrulata Fruit Extract, Sesamum Indicum (Sesame) Seed Extract

Effective long term regulation and control of sebum, based on 5 alpha-reductase inhibition.

Thymus Vulgaris Extract

Anti-microbial, anti-bacterial, anti-inflammatory.

Lysine Carboxymethyl Cysteinate & Lysine Thiazolidine Carboxylate

Antioxidant; Sebum reduction; Desquamation reduction.

## Rosacea

Another condition, rosacea, is often referred to as “adult acne,” but is different from classic acne because the bumps are usually smaller and they appear all at once, in cycles. The difference between actual acne and rosacea is that rosacea bumps will be warm to the touch and often very tender. Rosacea is sometimes misdiagnosed as eczema.

The exact causes of rosacea are unknown, but it is likely



an inherited skin problem triggered by extreme changes in weather (extremes in changes in temperature, such as strong winds, direct sun, and extreme cold), stress, and diet.

The most obvious characteristic of rosacea is the persistent redness that's often caused by swollen blood vessels. These tend to become exaggerated and visible in the center portion of the face—including along the bridge of the nose and across the cheeks. One thing that all rosacea sufferers have in common is sensitive skin. Rosacea can also produce non-inflammatory lesions.

## Treatment

First line treatment is usually to avoid those known causes, such as extremes of temperature, stress or certain foods.

To avoid extremes of temperature, apart from physical protection, is to use a good barrier cream in cold or strong windy conditions alternatively a cooling spritz or a very light cooling moisturiser in warm conditions.

To avoiding trigger foods, it is helpful to maintain gut health by taking a probiotic supplement or eating fiber-rich foods that encourage good bacteria to grow.

Substances applied to the surface of the body can also

trigger rosacea. The most common offenders include astringents products that contain alcohol, witch hazel, or fragrances. It is also beneficial to avoid toners, astringents, exfoliants, retinoids, alpha hydroxy acids, and all other skincare products that have not been approved by a dermatologist. Skin that is prone to rosacea tends to be especially sensitive to irritants and additives in skin care products. This is why having a simple skin care routine that is free of products with irritants is essential for preventing flare-ups. Choose products that are formulated for sensitive skin and be careful when choosing hair care products, which can irritate facial skin due to proximity.

If rosacea triggers have been eliminated but the symptoms persist, the next course of action is to use topical antibiotics.

## References

- 1 MyDr website  
<https://www.mydr.com.au/skin-hair/acne-overview>
- 2 Active Beat  
<https://www.activebeat.com/your-health/the-7-identifying-symptoms-of-rosacea/>

*Next issue is review*

*Formulation of Cleansers including Novel Surfactants*

# Backhousia citriodora leaf extract: a new active solution to control hyper-seborrhea for multi-ethnic skin

by Joan Attia<sup>1</sup>, Martin Shortt<sup>2</sup>, Valérie Bégin-Lavallée<sup>3</sup>, Claire Tubia<sup>1</sup>, Estelle Loing<sup>3</sup>

1,3 IFF-Lucas Meyer Cosmetics, Toulouse, Québec, France, Canada 2 Southern Cross Botanicals, Knockrow, Australia

## Abstract

Seborrhea is a common cosmetic issue that occurs when oversized sebaceous glands produce excessive amounts of sebum, giving the appearance of shiny and greasy skin. The balance between sebum secretion and the oxidation of its components (squalene, waxes, fatty acids...) has been described as a protective skin barrier against environmental stimuli (UVa, pollution) and dehydration. Moreover, it was described that diet, age, climates or ethnicity impact on this natural balance and induce hyper-seborrhea and skin inflammation. Convinced by the interest to rebalance both sebum quantity and quality, we developed *Backhousia citriodora* leaf extract, a new sebo regulator agent effective on multi-ethnicities.

*In vitro* studies revealed the extracts capacity to protect squalene, a sebum component, against oxidation by 18% and decrease protein expression of the sebocyte differentiation marker, Epithelial Membrane Antigen, by 32%. The designed extract was also able to significantly decrease lipid accumulation in sebocyte culture by 30%. This data was supported by a clinical study conducted over 28 days with twice daily applications of a cream

containing 2% *Backhousia citriodora* leaf extract on 31 hyper-seborrheic and multi-ethnic volunteers. Sebumeter® measurement showed the extract significantly decreased skin sebum quantity by -12% on all ethnicities. Moreover, sebum lipodomic profile analysis revealed the extract decreased squalene and glycerid contents by -15% and -23% on Caucasian, -11% and -15% on Asian and by -46% and -44% on African-Americans. *Backhousia citriodora* leaf extract rebalances sebum quality and secretion by acting simultaneously on the oxidation, composition and the production of sebum, regardless of ethnicity.

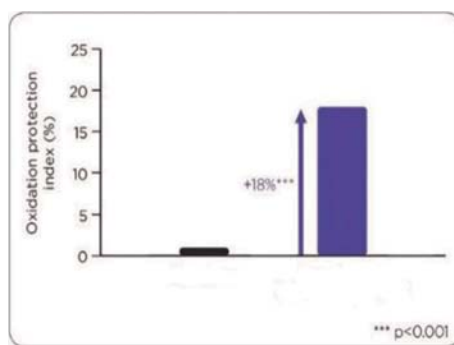
## Introduction

There are two main factors that induce sebum overproduction, characteristic of oily skin. The most common is overproduction of sebum due to hormone imbalance most notably during puberty. Fluctuating androgen levels trigger sebaceous glands and cause excess release of sebum, known as seborrhea. This can be controlled to a certain extent by an endogenous approach that inhibits 5 $\alpha$ -reductase involved in the transformation of testosterone to dihydrotestosterone. Secondly,

environmental exposure to harmful UV rays or high levels of air pollution can lead to oily skin. A study conducted in Mexico showed that city residents are more prone to oily skin than rural residents(1). Moreover, it has been shown that pollution and UV rays aggravate acne by increasing inflammation and reducing the skin's protection(2).

The skin balances sebum content and secretes sebum in reaction to the environment. It starts with the oxidation of squalene, a molecule found in the composition of sebum that is most easily oxidized by pollution and solar radiation. Squalene transformation changes the sebum composition creating squalene peroxides (toxins), which trigger inflammation. Lack of quality squalene is recognized as a lack of sebum by sebocytes. Because sebum acts as a skin protector, the sebaceous glands compensate for poor quality squalene by altering the sebum composition in favour of higher squalene levels. As a result, the skin becomes greasier and the sebum components are unbalanced. To protect the skin, squalene and glycerides are increased and fatty acids are decreased. Poor sebum quality leads to a cycle of oily skin as it increases sebum and squalene, thus increasing the likelihood





● Untreated squalene ● Squalene + 0.4% BCLE

Figure 1. *In vitro* squalene oxidation reduction

squalene oxidation, triggering the rest of the cascade.

Different ethnic groups display variability in how much sebum is produced and its subsequent composition. The sebaceous glands of African American skin types present in higher volumes and produce more sebum than Caucasian skin types. African Americans show significantly more sebum excretion than East Asians, whereas Caucasians and Hispanics show the lowest sebum excretion(3). African American sebum also has the highest squalene content(4).

*Backhousia citriodora* is a native Australian plant grown commercially for food applications and more prominently its steam distilled essential oil. *Backhousia citriodora* leaf contains approximately 8 times more hydrophilic antioxidants than blueberry(5). *Backhousia citriodora* leaf extracted via water was assessed for its ability to balance the skin sebum cycle across multiple ethnicities by maintaining sebum quality and regulating its synthesis.

## Results and Discussion

The oily skin cycle begins with the oxidation of squalene. Squalene is a

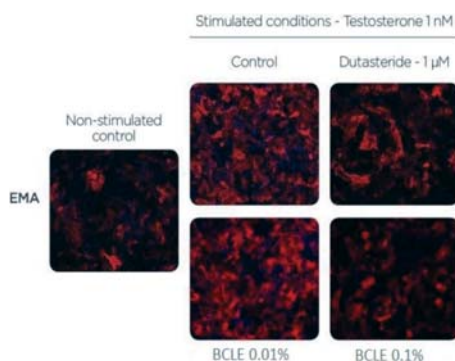
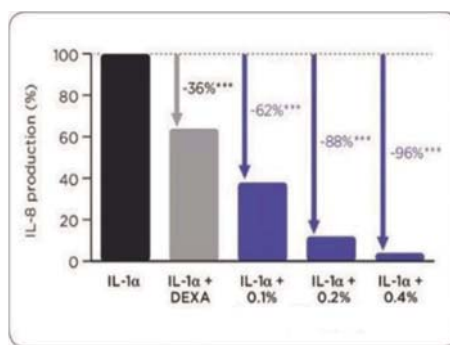


Figure 3. Immunofluorescence of Epithelial Membrane Antigen



● Placebo ● Dexamethasone +ve control ● BCLE

Figure 2. *In vitro* suppression of IL-8 inflammatory mediator

30 carbon tri-terpene with 6 carbon to carbon double bonds making it highly susceptible to oxidation from environmental factors such as UV light and pollution. *Backhousia citriodora* leaf extract was assessed for its ability to protect squalene from oxidation. Squalene was challenged by singlet oxygen in the presence of 0.4% *Backhousia citriodora* leaf extract. At 0.4%, *Backhousia citriodora* leaf extract protects squalene from degradation caused by singlet oxygen by 18% (Figure 1).

Squalene oxidation produces squalene peroxides (toxins) responsible for skin inflammation, expressed by the fibroblast release of IL1- $\alpha$  and IL-8 cytokines. In response to inflammation as a mechanism of skin protection, there is an associated increase in sebocyte differentiation compounding total sebum accumulation. *Backhousia citriodora* leaf extract was tested for its influence on the inflammatory response by measuring IL-8 cytokine production in human fibroblasts, modelling the exposure of dermal fibroblasts to squalene peroxides.

IL-1 $\alpha$  was used as a pro-inflammatory mediator to induce an inflammatory response in dermal fibroblasts. The anti-

inflammatory agent Dexamethasone was used as positive anti-inflammatory control. At 0.1% and 0.4% *Backhousia citriodora* leaf extract reduces the production of IL-8 by 62% and 96% respectively vs placebo, demonstrating a dose dependent effect (Figure 2). Sebum is made and secreted by sebaceous glands via mature sebocytes in a process called holocrine secretion.

To understand the effect *Backhousia citriodora* leaf extract on sebum secretion, we assessed its impact on the differentiation of sebocytes. We observed via immunofluorescence, a specific marker of this phenomenon called epithelial membrane antigen (EMA). *Backhousia citriodora* leaf extract was tested at 0.01% and 0.1% and compared to the negative control Dutasteride (1  $\mu$ M), a 5 $\alpha$ -reductase inhibitor. Testosterone (1 nM) was used to stimulate epithelial membrane antigen (EMA) synthesis and was used as the positive control for sebocyte differentiation.

*Backhousia citriodora* leaf extract tested at 0.1% reduced EMA expression by 30% in the testosterone stimulated human sebocyte cell line (Figures 3 & 4).

To confirm the inhibition of sebocyte differentiation, lipid accumulation in sebocytes was assessed. Testosterone (1 nM) was used to stimulate the differentiation of sebocytes to increase lipid synthesis and storage. Under these conditions, *Backhousia citriodora* leaf extract at 0.1% decreased testosterone induced lipid droplet accumulation by 32%.

To support *In vitro* findings, a clinical test was made on 30 Caucasian volunteers using a twice daily facial application of a cream containing 2% *Backhousia citriodora* leaf extract. The test showed a decrease in the surface area of oily spots by 14% after 15 days, and 20% after 30 days when compared to the placebo (Figure 5).

A study conducted in 2013(4) demonstrated a quantitative difference in sebum between ethnicities. A complete sebum profile conducted on Caucasian, African American and Asians shows total lipid content, measured by Sebustape® (followed by thin layer chromatography and Gas Chromatography), is greater

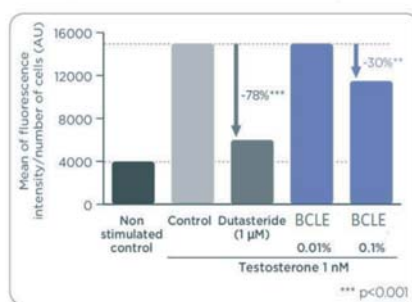


Figure 4. Reduction of sebocyte differentiation measured via fluorescence

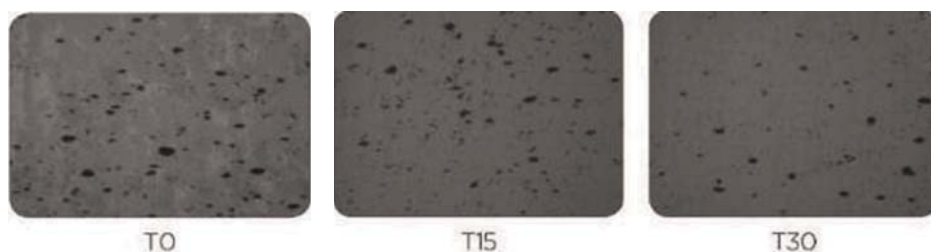


Figure 5. Clinical reduction of oily spot surface area measured by Sebutape®

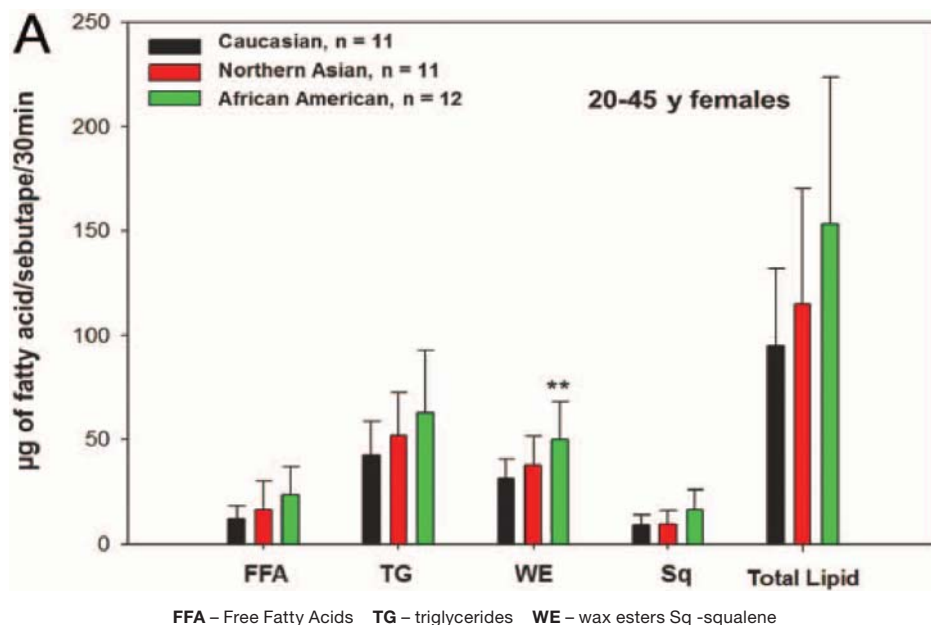


Figure 6. Clinical reduction of oily spot surface area measured by Sebutape®

Pappas A, Fantasia J, Chen T. Age and ethnic variations in sebaceous lipids. *Dermatoendocrinol.* 2013;5:319–324.

in African Americans, then Asian and Caucasians (Figure 6).

Based on this study, an active ingredient that regulates sebum would show a greater response on African Americans, as their sebum levels are higher, and a lower response on Caucasian as their sebum levels are lower.

To test the clinical efficacy of *Backhousia citriodora* leaf extract on multi-ethnicities, a trial was conducted on 31 multi-ethnic volunteers using a cream containing 2% *Backhousia citriodora* leaf extract twice a day during a 28 day period. Sebum accumulation measured using Sebutape® found a 12% average decrease in sebum accumulation vs

placebo after 28 days. Sebum reduction across different ethnicities was assessed to see how *Backhousia citriodora* leaf extract effects different ethnic groups. African Americans, who display the greatest quantity of sebum saw a 9% reduction in sebum vs placebo and a 17% overall reduction. Asian participants saw a 9% reduction in sebum vs placebo and Caucasians who have the lowest levels of sebum recorded a 6% reduction in sebum vs placebo.

Sebum composition was assessed via HPLC on 31 multi-ethnic volunteers. On all subjects a decrease in both squalene and glycerides was observed, most notably in African American

participants who saw a 46% reduction of squalene and a 44% reduction in glycerides vs placebo. Caucasian participants experienced a 15% reduction of squalene and 23% reduction of glycerides, while Asian participants experienced an 11% reduction of squalene and 15% reduction in glycerides (Figure 7).

## Conclusion

*Backhousia citriodora* leaf extract is a potent antioxidant that protects squalene from peroxidation, inhibits the liberation of inflammatory cytokines in skin and controls sebocyte proliferation and lipid accumulation, reducing the precursors to shiny skin. *Backhousia citriodora* leaf extract naturally restores and maintains lipid homeostasis across different ethnic backgrounds by acting upon multiple biochemical pathways involved in the skin sebum cycle.

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For detailed scientific methodology or product information contact Martin Shortt at Southern Cross Botanicals Pty Ltd, 226 Hinterland Way, Knockrow, NSW 2479. [marty.shortt@scbotanicals.com.au](mailto:marty.shortt@scbotanicals.com.au), P (02) 6687 8828

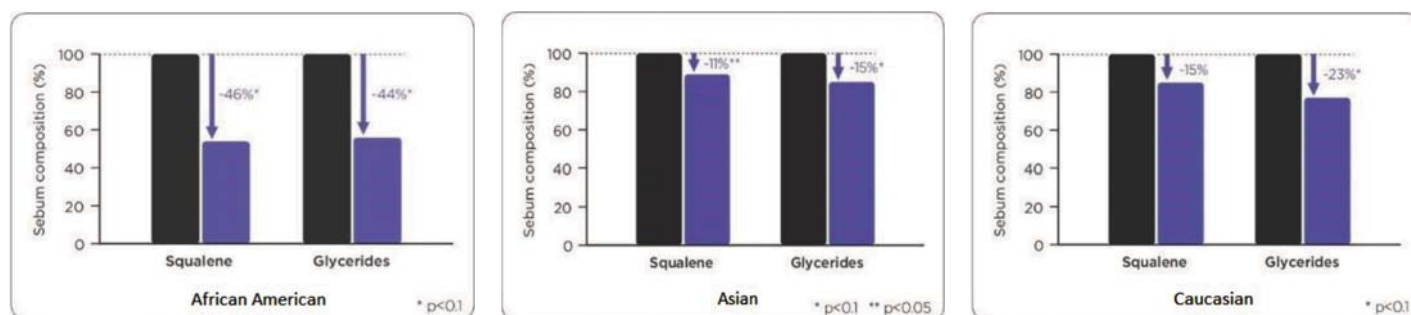


Figure 7. Compositional analysis of sebum via HPLC ● Placebo ● BCLE 2%

# Delivering the optical skin effects through science to achieve the “real beauty” for natural imperfections

by Anne Marie Vincent, Marie Elloitt, Giada Tonet, Isabelle Van Reeth, Pornsak Raopattananon  
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## Contents

Nowadays the global population is becoming older, more urban and more mobile. The age population segment is growing rapidly and significantly. At the means time, traditional social structures are fragmenting, shifting notions of personal identity. The consumers want to look and feel their best at every age, gender and lifestyle around the world. The innovation in life sciences and new materials matching on, the commercial investment in R&D and new ventures has slowed, but the downturn does not alter the ‘headroom’ for innovation in new technologies such as biotechnology, nanotechnology, materials science, and clean energy that address global issues including health/aging and resource challenges.

Achieving ‘Real Beauty’ at Any Age, there are 45% of consumers want their looks to reflect their age and with 55% of consumers believe that images of beauty shown on advertising are unrealistic.

Hence the consumers seek for:

- More “real beauty” that allows for natural imperfections and

individualism

- Products that enhance natural beauty
- Products that can provide immediate impact, enabling them to look good without “camera trickery” or photo-editing software Consumers are looking for products with an immediate and lasting optical effect – products that give them confidence in their ability to look their best at any age.

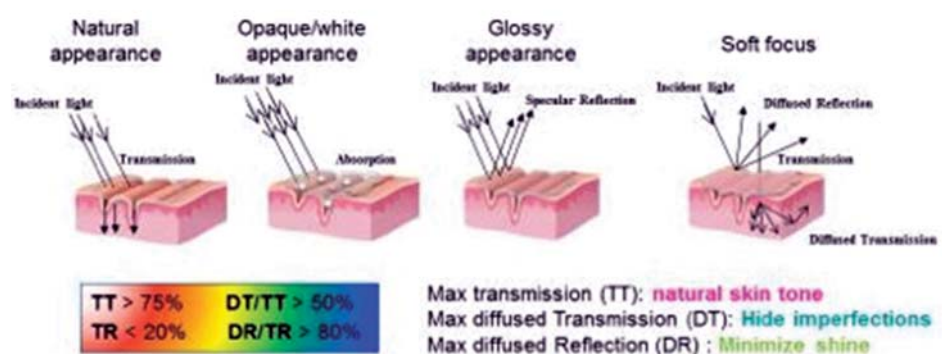
## What is Optical Effect?

“Optical Effect” is an effect that makes a skin imperfection appear

blurred. The intensity of this blurring effect depends on the amount of light scattered or reflected from the interface where the product is applied. The higher the blurring effect, the stronger the imperfection-masking ability of the product.

**Optical Effect** can be achieved through the use of silicone particulates or specially engineered silicone films. We can help you develop formulations that deliver those benefits with advanced silicone technologies and optical effect testing and formulation expertise. The selection of the specialty silicones have demonstrated their ability to add optical effect or

## Key Parameters to Obtain Optical Effect on Skin





blurring-effect benefits to oil-in-water, water-in-oil and water-in-silicone skin care formulations – benefits consumers will immediately notice and appreciate.

**Optical Effect (Soft-focus) testing capabilities**, the optical effect benefits of formulations containing the specialty silicones have been demonstrated in both in-vitro and in-vivo testing with good correlation between test method results.

#### For In-Vitro Testing: Visual

**Resolution** – A cosmetic formulation was coated onto a glass slide covering an ISO Test chart N02. Visual assessment performed by a trained operator: The lower the number of lines that could be perceived as not merging, the higher the blur.



VISA-CR (Confield Imaging Systems, Fairfield, New Jersey, USA)



#### For In-Vivo Testing: Image Analysis

**UV-Visible Spectrometry** – A UV-Visible Spectrophotometer with an integrating sphere was used to measure the optical properties required to achieve the soft-focus effect, and target percentage values were established of Maximum Total Transmission (TT) is a Natural skin tone, Maximum Diffused Transmission (DT) and Diffused Reflection (DR) is Hides/blurs imperfections. And minimum Total Reflection: (TR) is a Minimizes shine. The Targets:  $DT/TT > 50\%$ ;  $DR/TR > 80\%$ ;  $TT > 75\%$ ;  $TR < 20\%$  With the exception of TR (which is an indicator of shine), the higher the value, the greater the blurring effect.

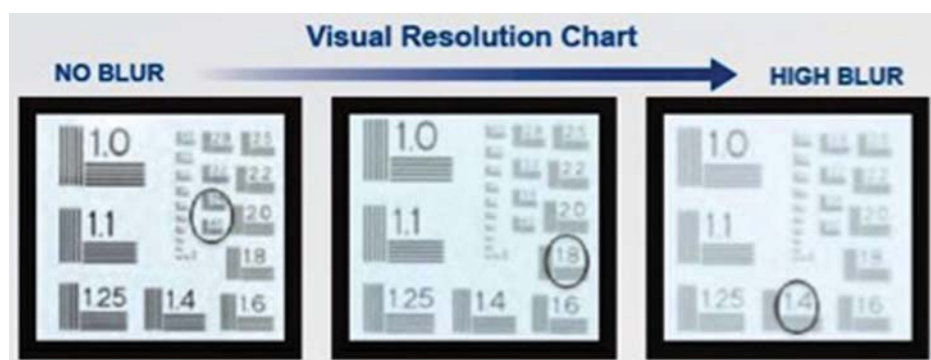
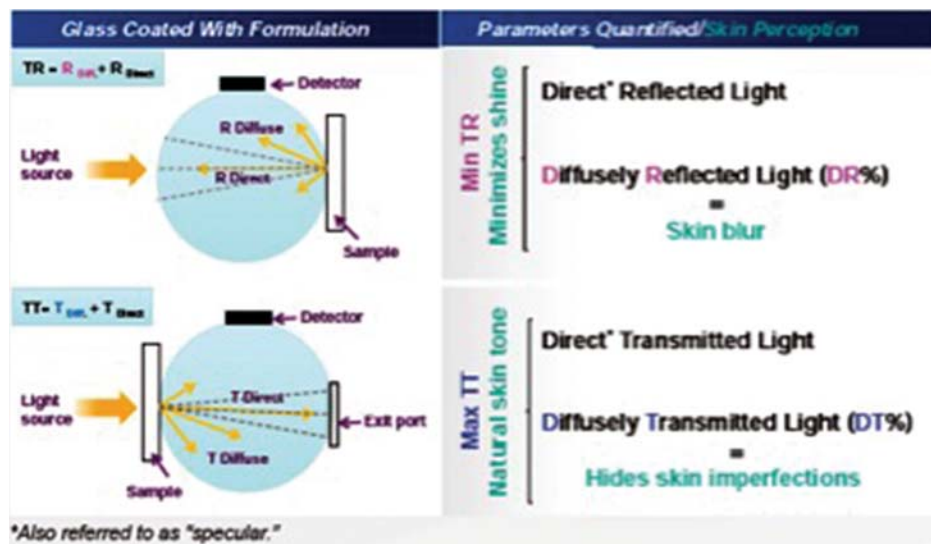
– Testing was conducted using a computerized image analysis system (VISA-CR or VisioFace). Five pictures were taken before the application of the formulations (neat skin) immediately after application and at subsequent intervals. The images were then ranked by a minimum of 12 evaluators by order of fine-wrinkle intensity on a scale of 1 to 5 (1= low and 5= high).

#### Image Analysis with VISA-CR



### Advanced silicone technologies of

- Particulates
  - Film-forming combination of particulates and silicone elastomer suspension or silicone resin wax
- Particulates from Si Elastomer Powder Film-forming combination of Si Aerogel and Si Resin Wax** From these Silicones of Silicone Powders (Si Elastomer Powders, Silicone Aerogel of Silica Silylate), Silicone Resin Wax and Silicone Elastomer Suspension are able to deliver the optical effect through the science of light scattering, film roughness and masking of skin imperfection that can demonstrate on soft focus for wrinkle masking, pore masking and skin mattifying that not only in the neat materials but also in the application which can be accessed and achieved.



### Testing and results analysis in the application with Silicones of

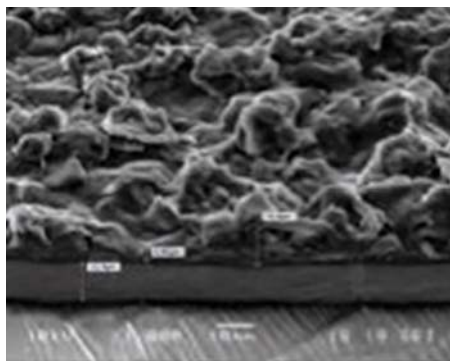
- Oil-in-Water with silicone resin wax and silica : for Wrinkle masking
- Oil-in-Water with silicone elastomer suspension and silica : for Wrinkle masking

- Oil-in-Water formulation : for Wrinkle masking
- Primer formulation : for Wrinkle masking
- Oil-in-Water formulation : for Pore masking
- Primer formulation : for Pore masking
- Oil-in-Water formulation: for Skin mattifying

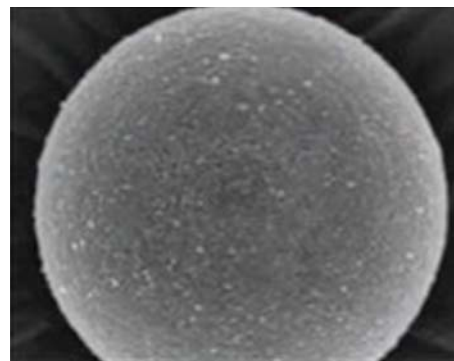
### The specialty Silicones for Optical Effect (Soft Focus) are:–

- Dimethicone/ Vinyl Dimethicone Crosspolymer (and) Silica
  - Dimethicone/ Vinyl Dimethicone Crosspolymer (and) Silica (and) Butylene Glycol
  - Silica Silylate
  - Dimethicone/ Vinyl Dimethicone Crosspolymer (and) C12-14 Pareth-12
  - C 30-45 Alkyldimethylsilyl Polypropylsilsesquioxane
- The specialty Silicones of Silicone Elastomer Powders, Silicone Aerogel and Silicone Resin Wax are able to offer Optical Effect benefits in the formulations, which can be demonstrated through in-vitro and in-vivo testing. There is a good correlation between in-vitro and in-vivo test method results. Silica and Silicone Particulates demonstrate optical effect through light-scattering. Silicone Resin Wax and Silicone Elastomer Suspension combined with particulates can demonstrate optical effect through film roughness. Other masking of skin imperfections can be assessed and achieved. Overall consumers are able to get more “real beauty” that allows for natural imperfections and products can enhance natural beauty with provide immediate impact, enabling them to look good with more confident by using the beauty care products that contain these Silicones. By Silicones can deliver on the optical effect benefits by:–
- Visual reduction of skin imperfections
  - Immediate optical effect perceived, “showing” that the product works

- Long-term optical effect is possible (up to six hours)
- Ability to achieve wrinkle-masking,



pore reduction and mattifying performance with a single product, depending on the formulation



# Defy the signs of ageing



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