



the science of beauty

Vol 7 No 3

December 2017



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- ✓ High Quality
- ✓ Fair Trade

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01-1000	Ecovera™	✓	✓	✓	✓	✓
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01-2125	Aloe Vera 1x Gel	✓	✓	✓		✓
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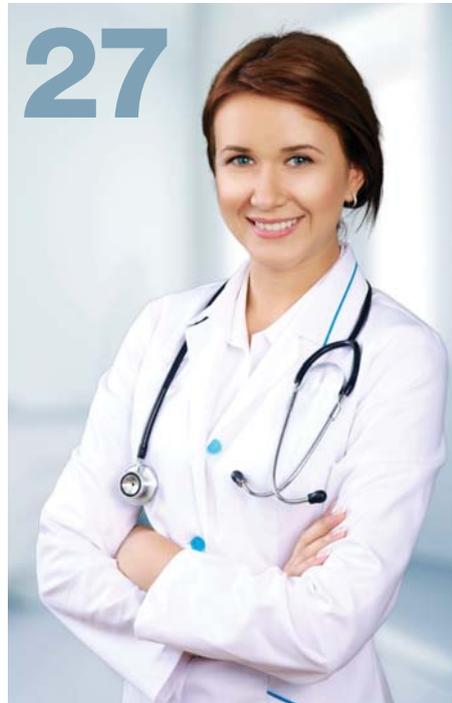
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meet the team...



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.

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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.

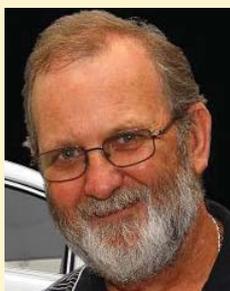
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JOHN STATON has a background of over 40 years experience in the pharmaceutical and healthcare industries. John is a life member of the ASCC and serves in a number of industry representative roles with ASMI, ACCORD, TGA and Standards. He is the Australian 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.



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.

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



ensure that your packaging consistently stands out on the shelves within this highly competitive market.



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.

GINT SILINS is a registered patent and trade marks attorney, and a principal of Cullens Patent & Trade Mark Attorneys. 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.



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.

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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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.

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She is a regular presenter at major International events and her work can be found in many national and International publications and Special Chem formulators site. She is the Official Technical Advisor to the in-cosmetics Group internationally and has written five books on Beginners and Advanced Cosmetic Formulation, Organic and Colour Cosmetic Formulation and Brand Management.



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.

how to create additional salon revenue with add-on sales

by Pam Stellema

Fact – Most salons are missing out on profitable sales every single day. Depending on the size of your salon business, you could be missing out on anywhere between \$20k to \$100K per year from add-on sales that never happen; the serum with the facial, the brow tint with the lash tint, or the gel upgrade with the pedicure. Simple add-on sales that are simply being ignored.

So why does this happen?

In my experience, there are five major reasons why salons are missing out on this substantial additional revenue.

- 1 Therapists or receptionists miss their opportunity to offer something extra during the booking process.
- 2 There's not enough time to provide something extra during the service.
- 3 There is no formal expectation by management that salon therapists will offer an add-on or up-sell to their clients, and therefore, no motivation to do so.
- 4 Formal training is not provided on how to up-sell naturally.

5 Salon therapists are not confident or comfortable with the process of recommending something extra to their clients.

Let's take a closer look at these 5 fail points and discover how they can be handled to produce better results.

1 Missed Opportunities

The ideal time to offer clients an additional service/s is, without a doubt, during the booking process. Not only is the existing client's service history at your fingertips to quickly review for possible add-ons she may have previously had, but if an additional service is added to the booking at this point, it will eliminate the need to squeeze something extra into the allocated appointment time on the day.

For new clients, or where no service history is available, a relevant extra services list, kept at the reception, can be referred to quickly for suitable up-sells. This list can easily be generated through brainstorming with your team members.



2 Lack of Time

Lack of available time can be a real problem if the additional service takes extra time and could cause the therapist to run late for her next client. When this happens, the best upsell is one that will replace an existing component of the treatment, or be very quick to deliver. A few strategies that come to mind are:

- Serums applied during the facial to enhance results
- Up-graded masks that will take the

place of regular masks

- Gel polish instead of regular polish
- Brow tints while lash tints develop
- Hand peel while the face peel activates

Depending on the services your salon offers, there are loads of various upsells that can be included when time is tight. Always look for opportunities to upsell to a more premium service that requires no additional time.

3 Goal Setting

Not setting individual sales goals for team members means no accountability is in place, and this results in a lack of motivation to offer additional services or upsells. Make time at the beginning of each day to spend a few minutes with your team members to review their clients for the day and discuss beneficial upsells for each.

Set a daily goal for each therapist based on the number of clients she has booked in her column and follow up at the end of each day to see if she has met her goals. If she has, congratulate her on her performance, and if not, discuss strategies she could have used to reach her goals.

The important points here are to set goals, create accountability, review performance, and provide encouragement and support.

4 Team Training

Your team members need to know not only what is expected of them but also how to achieve it. Keep in mind that training on any topic is not a 'do-it-once-and-hope-it-sticks' activity. It needs to be provided regularly and reinforced constantly to keep it front of mind.

The best and most successful training methods are those that are inclusive and fun for the trainee. Training that includes ideas and input from your team members will always have the best outcome.

To facilitate this, ask all team members to contribute suggestions and solutions to every training topic instead of sitting back and turning off while the

Not setting individual sales goals for team members means no accountability is in place

team leader does all the talking.

Make training a team effort and you will be rewarded with a higher level of participation.

5 Changing the Employee Mindset

I'm yet to meet a salon therapist who loves to sell (unless of course they are the business owner). Selling often feels uncomfortable for therapists and they see the whole process as outside of their real job of providing services and pampering clients. Basically, therapists want to nurture their clients and don't see selling as part of that process.

The way to overcome this is to change their mindset from selling being just about grabbing some extra money from their clients, to selling as a way to benefit their clients and help them achieve a better, faster outcome.

Good selling in a salon environment is always about strengthening the relationship with the client. It should result in a better solution for their problem. Bad selling happens when a client is pushed to purchase something that won't benefit her and therefore damages the relationship.

Make certain your team members understand that you only want them to do what will strengthen their relationship with their clients and not the reverse. This will help your team members feel more positive about suggesting extra services or items to their clients, and they will be less resistant to the idea of making beneficial recommendations.

When a client achieves a better, faster solution to their problem they will be grateful.

Client Awareness

It's always a good business strategy to ensure your clients are aware of the additional services you have available for them, as this awareness will help when it comes to suggesting something they may not have tried previously. Don't fall into the trap of assuming your clients are fully aware of all your salon has to offer, as few actually are.

One way to create additional awareness is to add your service extras to your Service Menu, grouped with the services they complement. Upgrades such as serums, masks or LED therapy can all be grouped within the Facial and Skin Treatment categories so that clients can easily see what else is appropriate and available to them. Apply this concept to all your extra options where room permits.

The Best Time to Suggest and Up-sell

The last thing you want your therapists to do is chat all the way through a relaxation-based service and leave the client feeling annoyed and deprived of their special relaxation time. This means you need to be strategic about choosing the best time to introduce the idea of a little something extra.

So, when should it be done?

The ideal time, in most cases, is either during or just after the consultation phase of the treatment, but before the main body of the treatment begins. The therapist should have completed her examination of the treatment area and asked the client questions about her problems and expectations.

If your therapists are not providing

If your therapists are not providing pre-treatment consultations, they are depriving themselves of a great deal of important information

pre-treatment consultations, they are depriving themselves of a great deal of important information that will help them to not only deliver a much better service, but also make useful recommendations for extras.

How to Upsell in the Treatment Room

Once the consultation is complete, make yourself easily seen by the client. If she is already on the treatment couch, then come around to the side and bring yourself down to her level by sitting on a stool. Place yourself in a position where the clients can see and interact freely with you to reduce any feeling of intimidation.

As you make your suggestions, phrase them in a way that highlights the benefits they will receive relative to the problem they are trying to solve. If your suggestions don't relate to fixing problems the client believes are important, she simply won't be interested and a quick 'no thanks' will follow.

Here's an example:

The client has expressed issues around her recurring acne breakouts.

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Her goal is to help her clients generate greater profits, which she does through her coaching, copywriting, courses, articles and books.

If you'd like to contact Pam, you can phone her on 0431 975 515 or send her an email via either website.

She is booked in for a deep cleansing treatment but nothing else.

After consultation, the therapist determines that a suitable serum applied under an infusion mask will reliably provide much better results for the client.

The conversation would go along the lines of, "Sara, it's great that you've booked in the for Deep Cleanse Treatment today. That will definitely get you started on your journey to clearer skin. I'd also like to suggest

we apply a healing serum and infusion mask also to give you even better results from your treatment. Are you okay with that? The extra serum and mask will be \$20 but the results will be worth it."

Note: I always recommend you provide your clients with full disclosure on the additional cost to avoid any problems when it comes time to pay for their service. Surprises at the register are never a good idea!

If you have a Service Agreement document in place, be sure to add the relevant details outlining additional costs for extra services here also.

If you follow the guidelines in this article, it won't be long before you see a real improvement in your revenue. If you're offering performance bonuses, your team will also see worthwhile benefits. This means that your salon, your therapists and your clients will all benefit from this sales strategy.



Need Help?

If you ever struggle with:

- Client attraction and retention
- Staff management
- Improved profitability
- Salon Marketing
- Service and menu development

Then why not give me a call to talk about how a POWER CONVERSATION package of 3 coaching sessions could turn that around for you.

Testimonial: *Thanks so much Pam. Your help has been just wonderful so far. There is no way I could have got myself this organised. Thanks for making this journey not seem so overwhelming.*

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50th ASCC Conference 16th-18th May 2018, Canberra

Only a few months to go to the 50th ASCC conference! The organising committee is putting every effort in to offer you the best time in Canberra. The exhibition booths have sold in minutes and we are proud to show you the [conference floorplan](#) on the next page detailing the name and position of the 21 exhibitors.

The call for abstract is now closed and the technical committee is now working tirelessly to put together the best educational and marketing program to be released in early 2018, so stay tuned! The [premium sponsorships](#) sale has been a remarkable success. If you missed on premium sponsorship, there will be plenty of other opportunities to promote your company and products through [general sponsorship](#) or in the [innovation zone](#), which is on again this year, after last year's success, in the coming weeks.

New for the 2018 edition! The organising committee created the [perfume pantry](#), a space dedicated to [essential oils, flavours and fragrances](#) in the south courtyard. Companies specialised in these fields are welcome to book a [display table](#) for the three days to network with their customers for only \$1,000 per table, there are still a few spots available. The south courtyard is located close to the exhibition hall, one level down. Book your table now with Kate at or to ascc@ascc.com.au. Full details on the ASCC website: www.ascc.com.au/annual-conference/

For the last edition of the Science of Beauty, we introduced our keynote speaker Mr Paul Frasca, founder of Sustainable Salons Australia. This month, we are very proud to introduce the conference [IFSCC guest speaker](#): [Perry Romanowski](#) has spent the past 25 years researching and developing products to solve consumer problems in the personal care and cosmetic industry. His primary focus has been [on hair and hair-related products](#). He is currently vice president of Element 44 Inc which specialized in science education. In 2014, Romanowski created the Practical Cosmetic Formulating online training program to provide cosmetic chemists continuing education across a broad range of formula categories. Previously, Romanowski worked for Alberto Culver serving as a senior project leader for hair care innovation. He is currently [the President of the Society of Cosmetic Chemists](#) (SCC). Additionally, he has made appearances on popular TV shows including the Dr. Oz show and the Rachel Ray show.



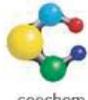
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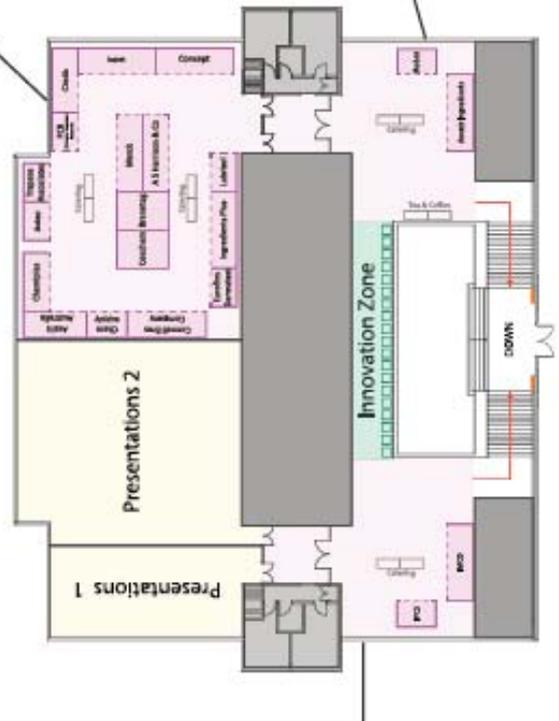
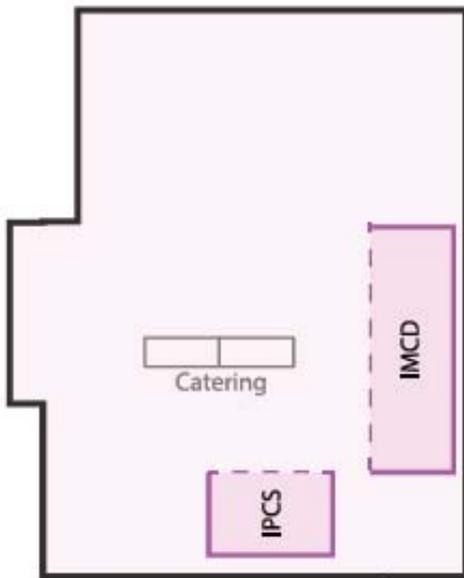
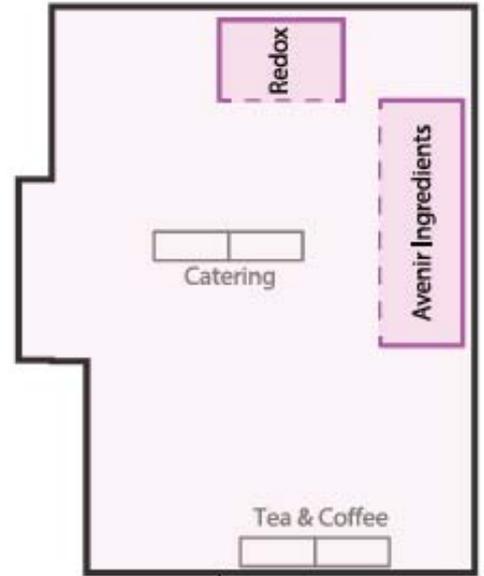
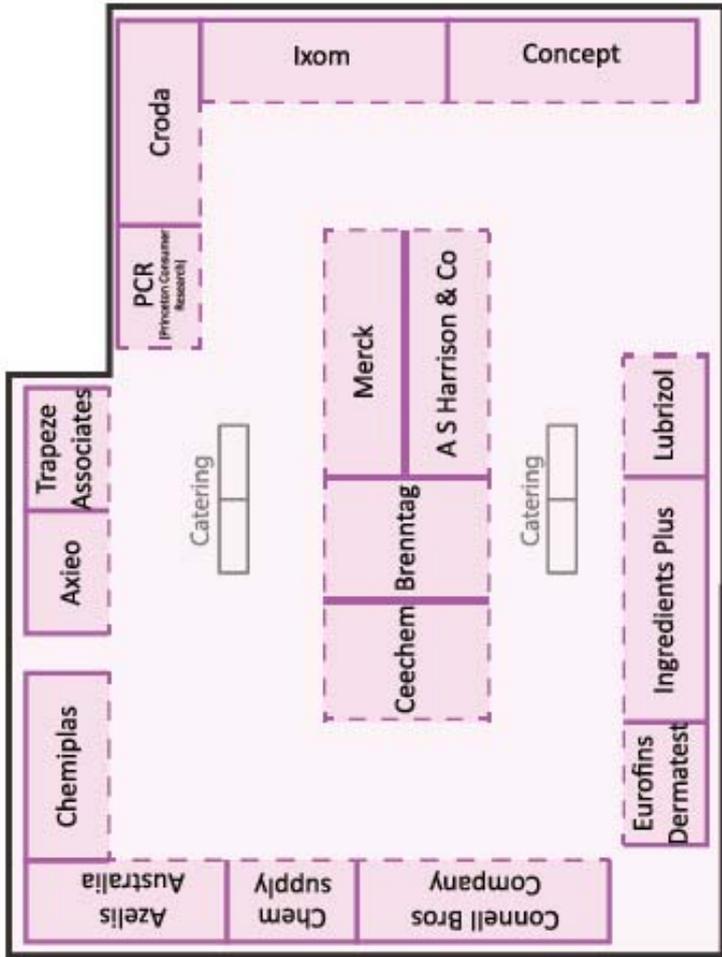


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the trickle-down phenomenon

by Rebecca Akhyani

Visiting a friend's house, I walk through the front door and am greeted with a pleasant aroma. "Thierry Mugler's Angel?" I ask. "Excuse me?" my friend looks a little confused as if I'm speaking a foreign language. "What am I smelling?" I ask again. "Oh, that's a new candle I just bought, Oriental Flower". The trickle-down effect strikes again.

The Trickle-down effect is a long standing and incredibly common phenomenon within the perfume industry in which a Fine Fragrance is matched and tweaked for use in functional products. In perfumery terms, a functional product is any fragranced product which has a primary function besides that of the pure enjoyment of a perfume by its wearer. For example skin care, toiletries products and home care products are all functional products. For use in functional products the original fine fragrance formulation is often modified to ensure good performance and stability in the new medium as well as adjusting the cost to be within the accepted range for that category. An example going back to the 1950's, Camay soap is said to be an Arpège type.

Of all branches of perfumery, Fine Fragrance perfumery has is the most direct link to fashion and lifestyle. Unlike other categories where certain precedence exists (what should a shampoo

smell like?), it is in Fine Fragrance that innovation is most widely embraced. And when these innovative new launches marry up with the spirit of the times, a hit is ensured. They become the fragrant soundtrack to our lives, so to speak. And suddenly we find that melody popping up everywhere.

Unlike more simplistic styles of fragrances, for example vanilla, which may be made of up of just 10 ingredients, Fine Fragrances can be composed of 60-100 different ingredients. It is this complexity in composition which provides the desired finesse. Using Fine Fragrance types in functional perfumery imparts an aura of luxury and elegance, and therefore helps to convey the premium positioning of a product.

I recently splashed out, treating myself to some very expensive hair care products. "Ah yes, it's a Miss Dior Cherie type!" I thought to myself as I stood in the shower lathering my hair. The untrained nose is unlikely to make the connection between the trickle-down and its original form. What the consumer is likely to pick up on is that the product smells feminine, fashionable or stylish.

A few weeks later I pick up a new masstige bottle of hand wash (a portmanteau of prestige and mass market). There it is again, a Miss Dior Cherie type! What is the likelihood, I



begin to wonder, of the same fragrance popping up in multiple incarnations in the one bathroom?

It brings to mind a scene from the film *The Devil Wears Prada* in which it is explained to young Andy how the wheels of the industry work and how it came to be that her sweater was that exact shade of blue. The trickle down phenomenon is equally prevalent in the fashion industry.

Sophie Ezéquel, head of fragrance evaluation at Ungerer UK predicts that soon our houses will be filled with aromas inspired by the 2016 launch Jo Love's Smoked Plum & Leather, blending notes of plum, smoke, cedar, cinnamon & leather. While young consumers might sniff the notes reminiscent of Dior's 2016 perfume Poison Girl in cosmetic and toiletries products in which the rose-vanilla accord is given a modern, youthful interpretation.



Eco-Friendly

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For over 60 years, RITA Corporation has specialised in supplying personal care, cosmetic and household markets with a wide range of high quality raw materials and blends.

Consumer demand is increasing for environmentally friendly and natural based materials, as well as ecological and green manufacturing processes. Similarly, there is an increasing emphasis on creating formulations that are energy efficient, whilst reducing manufacturing costs.

RITA Corporation has met these demands by creating products such as Ritafactant SFE, Ritamulse SCG and Ritathix DOE.

Ritafactant SFE is a mild surfactant that can easily be added to the water-phase of cold process production for cosmetic, personal care and household market segments.

Ritafactant SFE is an all-in-one blend and can be used in a wide range of formulas. It is cost competitive, sulphate free, sulphonate free and DEA/MEA free.

Ritamulse SCG incorporates a pre-balanced blend of plant based esters, fatty alcohols, and lactylates into an all-natural emulsifier blend. Ritamulse SCG is sourced responsibly (RSPO), completely GMO free and 100% vegan.

Ritathix DOE is a unique surfactant thickener blend, that can be added during any step of the manufacturing process. This eliminates the need for heat and other associative thickeners, all while reducing energy consumption and production costs.

All of these new materials deliver lower costs, streamlined production and more versatile materials that can be used across multiple market segments.

Cold process and natural blends, that offer more "Free From". Free from complexity, free from heating costs and free from formulating headaches.



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the 10 most frequently asked IP questions

by Gint Silins

Since the turn of the century I have been advising businesses and individuals in the personal care industry on all things intellectual property (IP). Over that time there have been many different queries, but some questions have been asked more frequently than others.

In this article I will address the ten most frequently asked IP-related questions by businesses and individuals, and so trust that it will be pertinent to your interests as well. As you can probably guess, most queries relate to brands/trade marks as well as trade mark disputes, then to a lesser extent inventions and patents and, finally, agreements (or should I say “disagreements”?) with manufacturers/formulators. I will use the terms ‘brand’ and ‘trade mark’ interchangeably, so my apologies to any purists reading this article.

Q1. How do I protect my brand?

A1. This one is straightforward to answer in that trade marks are best protected by way of registration under the Australian Trade Marks Act 1995. However, not all trade marks are

registrable, particularly those that are descriptive of the branded products (‘goods’), misleading, or need to be used legitimately by other traders in the normal course of business (eg. ‘BEST VALUE COSMETICS’).

The more difficult part is actually identifying the trade mark or trade marks that are of most importance to the business and should be registered. For example, most initially want to register their logo (ie. graphic + word/s) when in fact they should first and foremost want to protect their word/s without the graphic (ie. their ‘word mark’). In this way, a registration for the word mark will pretty much encompass and protect any and all ways in which the word/s is used, both with and without graphics. However, if the word mark is descriptive or otherwise not registrable, then registering the logo is usually the next best thing to do. Distinct logos (with or without words) can themselves also be very important to businesses, in which case these too should be registered in addition to any word mark/s.

Of course, a famous/well-known



trade mark may enjoy some measure of protection as an unregistered trade mark under common law (think Revlon™). However, in most cases trade mark owners won’t have obtained that degree of recognition for their trade mark, so trade mark registration is almost always the preferred option. Note that a trade mark registration is enforceable regardless of whether the trade mark is well known or not.

Australian Trade Marks Act 1995:
<https://www.legislation.gov.au/Details/C2017C00046>

Q2. I have registered my business name with ASIC, so that means I have sole rights to use the name and can stop others from using it. Correct?

A2. Not necessarily. A business name registration may mean that no one else can register that same name as a business name, but that's about it. ASIC has posted these comments on its website: "Registering a business name does not protect you against third party claims for trade mark infringement. To ensure your proposed business name doesn't infringe on an existing registered trade mark, you should use IP Australia's Australian Trade Mark Search to search for existing trademarks." In short, this means that your use of the business name (even if you successfully register it with ASIC) could infringe on someone else's trade mark rights. Also, a registered business name does not necessarily mean that you have any rights to stop others from using the name as a trade mark. If exclusive rights to the name are needed, then protection of the name should be sought under the Trade Marks act 1995 (assuming that it can be registered).

ASIC: <http://www.asic.gov.au/for-business/registering-a-business-name/before-you-register-a-business-name/>

Q3. I'm about to launch a skin care cream in Australia under my own brand, and I have been told that I should protect my IP. So what do I need to do?

A3. Most realise that they need to protect their brand/product in so far as that is possible, but there is more to consider in that we need to first determine whether there is any legal barrier to commercialisation of the branded product. So, this type of scenario usually requires the following investigations: 1. Will use of the brand infringe on the registered or unregistered trade mark rights of a 3rd party? This can only be answered by conducting a 'freedom to operate'/'infringement' search of the marketplace and conducting searches of various databases, including the Australian Trade Marks Office

database which is called ATMOSS. If a conflicting trade mark is being used in Australia or has been registered in Australia, then that may impact on the launch of the new branded product. 2. Will sale of the skin care cream infringe on the patent rights of a third party? This can only be answered by conducting a freedom to operate/'infringement' search of live Australian patents/patent applications or patent applications that can yet be filed in Australia at a later date. The Australian Patent Office's database is called AusPat. If a live granted patent or patent application covering the skin care cream is found, then this may impact on the launch of the new branded product. That is, the product launcher should seek legal advice. If, however, the skin cream formulation is more than 20 years old, then there are unlikely to be valid third party patent rights for the formulation. 3. Can the brand be registered? This can only be answered by conducting a search of ATMOSS. ATMOSS does not, however, cover trade marks used in Australia for which protection has never been sought. If a clear search result is obtained in that an identical or confusingly similar trade mark is not located for the same or similar goods and services, then the trade mark may be registrable. 4. Can the skin care cream be patented or otherwise protected? If the cream is new and inventive/innovative compared with known creams, then the cream may be patentable. Searches of the marketplace and of patent databases are recommended. A searchable patents database that covers patent documents from many countries is known as Espacenet. A patent filing under the Australian Patents Act 1990 should only ever be carried out by a patent attorney who has the technical expertise and legalese training to properly write up a patent specification and protect the invention. In my experience, those filing their own patent application don't usually obtain adequate protection for their invention and usually there is nothing they can do about it, even if they later on engage the services of a

patent attorney. If relying on a trade secret to protect the formulation, any so-called protection will only last in so long as the formulation cannot be reverse engineered from the ingredient label and/or using funky analytical lab equipment. Regarding trade mark and patent searches, there are many traps for young players, so I strongly suggest using a professional to carry out those searches and to provide an infringement and registrability opinion.

ATMOSS: <https://search.ipaustralia.gov.au/trademarks/search/quick>

AusPat: <http://pericles.ipaustralia.gov.au/ols/auspat/quickSearch.do>

Espacenet: <https://worldwide.espacenet.com/>

Australian Patents Act 1990: <https://www.legislation.gov.au/Details/C2017C00045>

Q4. It is my product patentable?

A4. Is it new ('novel') compared with everything known? If yes, then that is a good start. However, it must also be innovation/inventiveness compared with everything known. This means that mixing ingredients A and B together for the first time ever to produce formulation AB may be novel but not necessarily patentable if the formulation functions exactly as you would have expected it to based on your earlier knowledge of ingredients A and B. Put another way, there must be some unexpected advantage or unsuspected effect, or problem that needed to be overcome to make the invention work... something that is not described in a textbook nor of ordinary knowledge. These types of reactions are usually indicative of some degree of innovation/inventiveness and patentability: "Wow, I did not expect it to work that well."; "It shouldn't have done that..."; "Hey Mum, come and have a look at this!"; "What the...?!"; "Eureka!"; "LOL!"; and "JJJ". [Yes, it must be a triple smiley face ;)]

Q5. How would you protect my novel formulation? How would you protect my new active ingredient?

A5. Normally I would try to patent the

formulation, its method of preparation as well as its method of use. Not only would I protect the actual formulation/recipe provided to me (eg. ingredients A1, B1 and C1), but I would attempt to broaden the scope of protection by way of protecting similar ingredient types that could be used as substitutes (eg. ingredient class A which could include any one of ingredients A1, A2, A3 etc; ingredient class B which could include any one of ingredients B1, B2, B3 etc; ingredient class C which could include any one of ingredients C1, C2, C3 etc). The same broadening would be done for the method of preparation and method of use. Regarding an active ingredient, normally I would try to patent the ingredient, any and all formulations that could include the ingredient, methods of preparation as well as methods for its use.

Q6. Is there a worldwide patent? Is there a worldwide trade mark registration?

A6. No and no. People tend to think that an international patent application (a ‘PCT application’) is some sort of worldwide patent. A PCT application never matures into a patent in any country. At best, a PCT application is an intermediate application, providing you with approximately 1.5 years of additional time to assess in which countries patent protection should be sought. The PCT application is used in a sense as a stalling tactic and launchpad for filing proper patent applications in each country of interest. Although a PCT application covers many countries of the world (152 at the time of writing), it does not cover each and every country of the world. In addition to the PCT application, there are other single-application regimes for filing in select groups of countries. An example is the European patent which covers member states of the European Union.

Regarding worldwide trade mark registration, the closest we come to this at present is an international registration under the Madrid Protocol system. You can apply for protection in up to about

100 countries/jurisdictions by filing a single application and paying one set of fees. Note that a fee is payable for each country/jurisdiction designated, and filing in all countries/jurisdictions at the same time is usually cost prohibitive. The Madrid Protocol system is a convenient and cost-effective solution for registering and managing trade marks in many different countries/jurisdictions, including the European Union, USA, China, Japan, South Korea, New Zealand and Singapore.

PCT: <http://www.wipo.int/pct/en/index.html>

European Patent: http://ec.europa.eu/growth/industry/intellectual-property/patents_en

Madrid Protocol: <http://www.wipo.int/madrid/en/>

Q7. I have been selling my formulation for the past 8 months. Can I still patent it?

A7. For a minority of countries that includes Australia, the USA and Canada, the answer is probably “yes”. However, a (complete) patent application must be filed in Australia, USA and Canada within 12 months of the date of first public disclosure/commercial use of the formulation. If the 12 month period has passed, then the answer is almost definitely “no”, at least for the majority of countries.

Q8. Someone is using my brand! What can I do?

A8. For starters, investigate the potential infringer. Who are they, how large are they, when did they start using the trade mark, in connection with what goods or services, is the brand likely to be essential to their businesses and, in view of all of this, are they likely to put up a fight to continue using the trade mark? If the potential infringer has earlier use of the trade mark, then they have a defence to trade mark infringement and they can continue using the trade mark regardless. If the enquiring person has earlier use of the trade mark but has not registered it, then that is the first thing

that needs doing, but it will take at least about 7 months to register, before being able to serve on the potential infringer a ‘cease and desist’ letter of demand. If you send a letter of demand prior to registering the trade mark and allege enforceable common law rights in the trade mark, then the potential infringer will probably try stopping you from successfully registering your trade mark and possibly not comply with your demands. So, in most disputes, it may be best to first register your trade mark before taking action. A legal advisor should always be consulted before making any threats against a potential infringer.

Q9. I want to move from my current manufacturer, but the manufacturer won’t release the recipe to me. What can I do?

A9. This depends on the initial agreement with the manufacturer – whether written or verbal. Who owns the recipe? Who created it? What does the initial agreement say (if any)? If the manufacturer has breached the agreement, then a legal advisor specialising in contracts should be engaged. If there is no verbal or written agreement in place, then really there may be no leg to stand on. Often it is the case that the manufacture will offer to release the recipe for a price. I touched on this in my earlier article entitled ‘Working with Formulators/Manufacturers’, published in The Science of Beauty, Volume 7, Number 2.

Q10. I have modernised my brand. Is my updated brand still protected by my trade mark registration? Oh, I am also using my brand for additional products. Am I still covered?

A10. This will depend on what degree the brand has changed. If it is substantially identical to the old brand, then the current registration may still cover it. However, I would suggest seeking amendment of the trade mark representation as registered. If the

Trade Marks Office refuses to enter the amendment because the updated brand is too different, then file a new trade mark application for the updated trade mark. Regarding coverage of additional products, if the additional products don't fall within the scope of the goods of the registration, then a new filing will be needed.

In more recent times, incoming enquiries are trending towards issues of trade mark use, as well as unauthorised trade mark use, on the internet, particularly on social media sites. (Think Google™ AdWords, Facebook™ and eBay™.) Also, since

.com.au and .com websites are accessible from most parts of the world, export also seems to be of more interest to Australian businesses and individuals than ever before, especially when it comes to China and USA. Perhaps these are issues worth addressing in a future article?

Disclaimer

This article is intended to provide general information only. The contents should not be relied upon as detailed legal advice for any specific case. While every effort has been made to ensure that the contents are correct at the time

of publication, please note, the relevant laws and practice are subject to change. Specific advice should be sought from your legal advisor.

GINT SILINS is a registered patent and trade marks attorney, and a principal of Cullens Patent & Trade Mark Attorneys. 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.



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create your own look, design and feel to packaging

by Steve Welsh

I write this to you from Cosmoprof Hong Kong, as always, it's a big week, meeting with suppliers and customers all around the world, catching up on anything happening and networking with our peers . . . plus, I managed to fit in a quick visit to the night races at Happy Valley and lose a few Hong Kong dollars.

2017 packaging on show was very much the same as 2016, and 2015 before that, not a lot new nor different with a lot of the same things being offered and being repeated by multiple factories.

It again reinforced to me the only way to stand out is to actually create your own look, design and feel to the package. Whether that's talking to our team about textures and colours or getting us to design your new packaging from scratch with our detailed design brief, it's the only way to really not be seen as a "me too".

Quick takeaway

In terms of using packaging to reinforce your brand messaging, we can help you to recover up to 40% of post-consumer resin (recovered plastic that will not be going into the oceans).

We then use this in the creation of new tubes that will still have the reliability to hold your product from manufacture till the end of its shelf life. Great brand messaging for all markets.

When looking at the barrier properties of tubes, we have ABL, PBL, EVOH, all these acronyms can be confusing and minimum order quantities can be excessive. With our 10,000 minimum order quantity for any of these barrier systems, it means we can help you package more products in a tube that is safe and consumer friendly to use.

Today's challenges of online marketplaces brings new challenges with packaging. There's eBay, Amazon, Taobao, Rakuten and Vip etc. These virtual market places get you directly to the end user, however, the challenge is getting your product to your consumer in a presentable way so the brand experience is enhanced, and still meeting the package requirements of the fulfillment systems. Amazon for example have a drop test that each item must pass.

Bio plastics, we are still not there yet from a mass market solution for either quantity or price. We continue to monitor advances in this field and will



be at the forefront, trying to bring it through the beauty industry when ready.

One last observation, each year by the end of the exhibition, I hear the horror stories of brands going to factories and trying to work out a complex set up of large minimum order quantities, language barriers, quality standards, ethical manufacturing practices, massive fluctuations on price and the hidden freight charges. I wish, rather than have customers coming to us after being burnt by trying elsewhere by the packaging process that they knew in the first place, and listened to what our long term customers that say, "It is so easy to deal with you and we can just concentrate on

what we do best – create great products and grow new markets”.

Really it is as simple as picking up the phone and talking to one of our team that will take the brief, understand the challenges you are facing, and recommend a solution for your needs.

Thanks for reading, I hope you have a great Christmas, and look forward to sharing some new packaging information with you in 2018.

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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- Experience in business development, and developing strong and robust relationships with clients.
- Experience in quality and accreditation processes, will be an advantage.
- Background and/or experience in technical (e.g. scientific, engineering, manufacturing) aspect of Personal Care products.
- Technical or commerce qualifications and/or university master's level qualifications, will be an advantage.
- Ability to build and structure business plans, submissions and initiatives.
- An entrepreneurial spirit and eagerness to take the next step.
- Strong written and oral communication skills and the ability to structure thoughts deliberately, logically and directly.

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STEPS



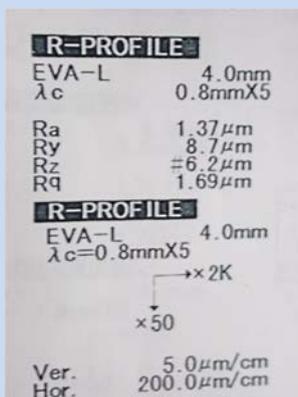
1. Silicone Impression



2. Matched Impressions



3. Profilometry



4. Recording and Reporting

No. 6 Profilometry (Wrinkles)

Measurement of Skin Profile – Roughness and Wrinkles

Supportable Claims

- Wrinkle Reduction
- Skin Smoothness
- Cellulite

Skin Mapping

The area to be scanned from each sample is clearly mapped so as to determine the exact same area for relevant future time points.

Silicone Impressions

At each visit, a single silicone replica is made of an area on one side of the target area and a record is kept of this target. The samples are stored in controlled conditions for comparative measurement. An additional benefit is that the impressions can be stored for long periods as a semi-permanent record if required.

Profiling

Comparative analysis of skin profilometry is conducted, using surface roughness analysis. Typically, Ra (skin roughness and Ry (wrinkle Depth) are recorded at each time of measuring operation.

Test Target Sites

The common target is the crows foot area around the eye. Other sites include scarred areas and cellulite lines.

Reporting

Data for at least 10 test subjects is accumulated. Percentage improvement is expressed as Ry –

(wrinkle depth) and/or Ra – (average roughness).

$\frac{\text{Initial} - \text{Final}}{\text{Initial}} \times 100 = \% \text{ improvement}$

For Wrinkle Test

Test subjects with medium wrinkling in the eye area (crows foot).

For Skin Roughness

Can be as an adjunct to the wrinkle test. Adjoining non-wrinkled area is measured.

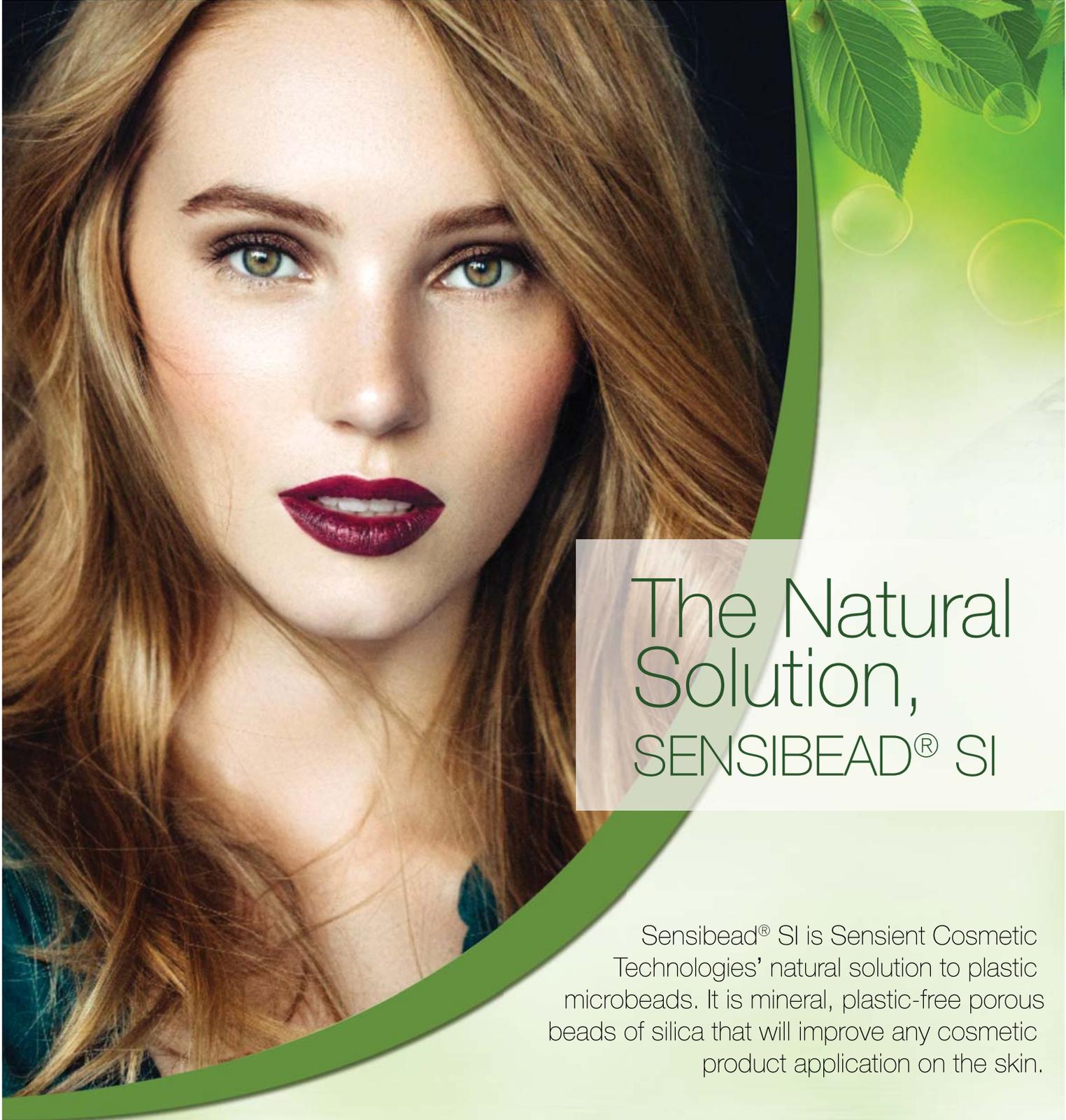
Alternative Methods

Recent developments in this measurement area include several alternative systems which are based on 3D imaging.

References

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2. Profilometry of Skin – a useful tool for the substantiation of cosmetic efficacy. Cook Thomas. H, Journal of the Society of Cosmetic Chemists Vol 31 No7 1980.

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fair trade community partnership = improvements in people's lives

Aloe Vera produced to the highest ethical standards

A S Harrison & Co has had the pleasure of partnering with Concentrated Aloe Corporation for over five years supplying the industry with quality aloe vera products produced in some of the most ethically responsible conditions worldwide. Their production methods are not only sound but give back to the community in a program designed to support the whole farming community.

Concentrated Aloe Corporation (CAC) has strong ties to the community of Guastatoya. From their staff of over 60 team members to the Farmers 30+ who produce the raw materials, it is their partnerships in the community that allow them to guarantee their customers the highest quality aloe vera in the industry.

Concentrated Aloe Corporation's commitment to the principles of fair trade and organic production means that they are dedicated to giving back to communities that they work with. This is why CAC guarantees a fair wage and respect for all team members, sponsors agricultural improvement plans for the farmers they buy from, and actively gives back through community involvement programs.

It is only through their close collaboration with the aloe farmers and the community of Guastatoya in Guatemala that CAC is able to give their customers the widest range of organic aloe vera products on the market. These are partnerships that A S Harrison & Co are proud of.

Guastatoya, Guatemala

Raw aloe vera leaves are purchased from local farmers and processed into a wide variety of products at the facility, Vegetal

Extracts S.A., just outside of Guastatoya. This organic facility employs 60+ team members from the local community of Guastatoya. The entire CAC team is dedicated to the highest standards of consistency and quality, from hand-filleted aloe leaves to precise quality control; CAC guarantee the best and purest aloe vera gels, powders and concentrates.

Concentrated Aloe Corporation's Aloe Vera is grown exclusively in the hills and valleys surrounding Guastatoya, Guatemala. Sitting in the dry corridor of Guatemala, the sun soaked hillsides of Guastatoya provide the perfect climate and conditions for growing the highest quality aloe vera. CAC Aloe vera products are of the highest quality and are produced in accordance with the standards of organic and fair trade.

Half of the Guatemala population is under 19 years of age and there are 3 children per household/ 3+ for indigenous people. The poverty level is approximately 73% of the





population and out of that 73% population, 22% live below the poverty level (extremely poor) and are indigenous tribes.

Nearly one-half of Guatemala Children under 5 are malnourished (one of the highest in the world) and education spending is 3% GDP (Gross Domestic Profit)

Concentrated Aloe Corporation believes that education is the key to ending poverty and has created 34 manufacturing jobs in the plant in Guastatoya. They have partnered with 14 independent agricultural farmers - each independent farmer hires approximately 10 people per farm of approximately 7 acres. Workers are paid above average minimum wage and CAC pay top dollar to farmers for aloe crops as well as being committed to assisting farmers obtain certifications for Fair Trade and Organic.

Commitment to Fair Trade

Fair Trade ensures that workers, suppliers (farmers), farm labourers are paid fair wages (no less than minimum wage), have representation and international labour laws are adhered to including all forms of discrimination and are provided a clean safe work environment.

The community benefits through community development funding projects, such as, but not limited to – Healthcare – Education Improvements – Food/ Water

The funds are allocated by local committee representatives which are made up by individuals from the various regions.

Commitment to sustainability

Concentrated Aloe Corporation strives to be on the technological leading edge of our industry. CAC practices extensive quality control measures to ensure that their botanical products are simply the best. They utilise sophisticated analytic techniques such as DNA Barcoding, HPLC, GC-MS, and NMR so that they can guarantee the quality, purity and authenticity of the botanicals.

Commitment to quality

Concentrated Aloe Corporation are dedicated to having a positive impact in the communities across the world where they produce their botanicals. CAC upholds the ethic of fair trade and organic business

practices by investing in the communities where they operate and only working with partners who share the values of sustainability, quality, and respect for the environment.

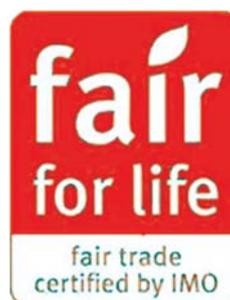
This year Concentrated Aloe Corporation will introduce the Fair Financing – Agricultural Improvement Program to provide affordable financing to agricultural producers in El Progreso, Guatemala. The program is funded by the proceeds from CAC's Fair Trade Certified products.

Farmers and small businesses in El Progreso have very limited access to financial resources and institutions. The resources they may have access to come with prohibitively high interest rates. Lack of access to affordable financing is one of the primary hurdles to a farmer improving or expanding their operations.

Fair Financing will provide affordable loans that will allow farmers to implement capital improvements that will increase productivity, grow their incomes and produce local jobs.

A S Harrison & Co offers a range of Aloe Vera products that deliver guaranteed reliability, purity, authenticity and quality. We have the largest range of organic certified aloe products in the industry. By purchasing from A S Harrison & Co, you are not just buying quality ingredients but also supporting a company that operates to the highest ethical standards and believes in giving back to the community.

For more information please contact Jeanette Padilla - Business Manager, A S Harrison & Co at jeanette.padilla@harrison.com.au or +61 (0)2 8978 1004



skincare



just what the doctor ordered

by Emanuela Elia



With global sales expected to exceed \$130 billion by 2019, skincare is the biggest segment in the beauty industry according to Forbes. More demand means plenty of opportunities for new products and brands to come into the market and bring innovation that can satisfy the latest trends. Cosmetic companies invest huge amount of resources into new product launches, which need to be strategically planned so that good products are associated with equally strong marketing and product claims.

Being involved in clinical trials for the personal care industry means we are often asked advice on how to support a variety of cosmetic claims. One claim that seems to be particularly valued for skin care products is “Dermatologist(s) recommended”,

Backing of products by medically qualified professionals, whether done privately in their clinics or publicly in the media, has great impact on consumer confidence and sales conversion. Cosmetic products that are referred by doctors who specialise in skin health,

possess a definite competitive advantage.

“Dermatologist(s) recommended” does not imply that clinical research has been conducted on that product nor it defines the benefits of the product. This claim is rather a form of endorsement which is emphasised by skin care companies for marketing purposes.

How is such endorsement obtained?

Commonly, the skin products displaying such claim have been on the market in Australia and/or overseas for many years. Some of these products are well known among doctors and they may have gained a ‘reputation’ to be relatively effective and ‘safe’. Such household brands are commonly referred by doctors for everyday cosmetic use. Therefore, it’s probably correct to say that over the years these products have been ‘recommended by dermatologists’.

However, this type of claim is rarely used with reference to a new or relatively novel product or brand. This is simply because new products have not by definition been on the market long enough to gain such ‘status’. Therefore, it

might be difficult to prove that they are indeed recommended by dermatologists, if ever challenged.

How do you obtain a similar type of endorsement for a new brand?

In order to assist clients to support similar claims in relation to their newly developed products, some cosmetic testing companies offer to conduct testing under the supervision of a dermatologist (sometimes at an additional cost) so that clients are able to claim ‘dermatologist tested’ or ‘dermatologist approved’. The likely scenario here is that a dermatologist has a role in the testing procedure

being carried out on the product in order to support the claim, however the actual outcome of the test or the details of the procedure to obtain the said dermatologist 'approval' are rarely scrutinised. Also, the fact that one dermatologist has 'tested' or 'approved' the product, doesn't necessarily reflect the opinion of the entire medical fraternity, which is perhaps how this claim hopes to be perceived.

Doctors' endorsement in Australia

In Australia it is uncommon to find physicians who are willing to endorse cosmetic brands or be commercially associated with particular personal care products, at least openly. You might have noticed, for example, that TV or paper advertising more often involve overseas doctors supporting the effectiveness of certain skin care brands. Or you may have come across Australian doctors recommending their very own brands rather than someone else's. Whether the choice to dissociate from the commercial

side is dictated by professional integrity or simply lack of interest, generally it is not easy for cosmetic companies to obtain clinicians endorsement locally in Australia.

Other options

The lack of involvement by medical professionals with practices concerning cosmetics sales encourages companies that are willing to have their products tested in Australia to focus their marketing on other, probably more interesting aspects regarding cosmetics. These include their efficacy, safety and consumer likeability. Skin care brands that wish to have their products tested under Australian conditions, by people living in Australia, more often choose to focus on claims associated with the actual test (e.g. dermatologically tested), the characteristics of the test participants (e.g. suitable for oily skin) and the test results (e.g. clinically proven to improve skin hydration by 50%). These types of claims address the true purpose of scientific

study being conducted on cosmetics, which is collecting evidence regarding the benefits of the cosmetic to the end user. After all, shouldn't the success of a cosmetic product be measured by the number of happy consumers, rather than the quantity of paid endorsements?

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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Lipotec confirms efficacy of EYESERYL® peptide against baggy eyes in men

Lipotec confirms efficacy of EYESERYL® peptide against baggy eyes in men.

It is said that the eyes are the mirror of the soul, able to reflect not only outer but also inner beauty. The eyes are also one of the first places where age-related signs and tiredness become noticeable, with the appearance of eyebags and dark circles.

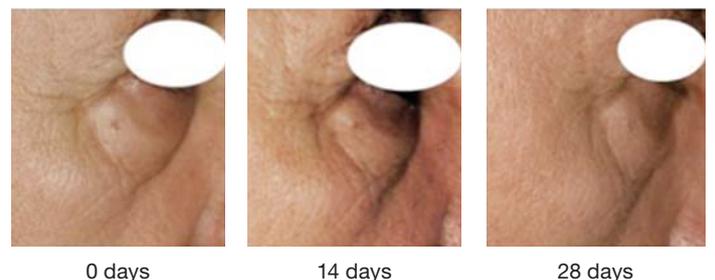
Baggy eyes are mostly related to the aging process itself. However, other factors such as gender, high body mass index and smoking also contribute to the presence of this aesthetic concern. Gender in particular is believed to influence the presence of eye puffiness. Research suggests that men are more prone than women to have eyebags related to lipids due to fat protrusion.

EYESERYL® peptide helps improve the overall appearance of the eye contour by minimizing the presence of eyebags and dark circles, and by reducing skin damage of this delicate area.

The ability of the peptide to minimize the eyebag volume was recently assessed in a new study performed on male volunteers between 30-65 years old with prominent eyebags that applied a cream containing 1% EYESERYL® peptide solution on one eye contour and a placebo cream on the other, twice a day for 28 days. Under-eye puffiness volume significantly decreased up to 29.7% after 28 days, and the overall appearance of the

eye contour visibly improved as observed through digital photographs.

Reduced eye puffiness in men



0 days

14 days

28 days

In addition, on the self-evaluation of the subjects, 90% of the volunteers positively rated the treatment, willing to recommend the product as an efficient anti-eyebags treatment.

EYESERYL® peptide helps improve the under-eye region in men and women, being an ideal product to incorporate into eye contour formulations intended to minimize the appearance of fluid and fat-related eyebags, as well as to reduce under-eye dark circles and tissue damage.

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

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Relaunch of KOSMET cosmetic science paper database

The International Federation of Societies of Cosmetic Chemists (IFSCC) is pleased to announce the relaunch of its KOSMET database, the only global database populated exclusively with cosmetic science abstracts, with free access until 1 November 2018.

The newly-installed President of the IFSCC, Dr Peter Kang, said from Seoul, South Korea: “The new KOSMET interface we’re launching today will make the KOSMET cosmetic science database much easier to use. Many scientists told us the old KOSMET interface wasn’t user-friendly, and we listened. We invite all cosmetic scientists to try the new KOSMET today at www.kosmet.com.”

Thanks to financial support from corporate sponsors **Greentech** and **Pechoin** the IFSCC is able to make KOSMET free until 1 November 2018 to all individual members of IFSCC Member Societies – over 16,000 cosmetic scientists worldwide. All 83,000+ abstracts can be searched by anyone; to download an abstract for free the user must register with KOSMET and indicate the cosmetic science society they belong to.

“The relaunch of KOSMET is one example of how the IFSCC is trying to bring more science to more scientists around the world” said Dr Frédéric Leroy, Paris-based Chair of the IFSCC Science Committee. “In the coming months we will be adding papers and posters presented at IFSCC Congresses and Conferences, so KOSMET will become an even more valuable resource over time.”

About the IFSCC

Founded in 1959 by 7 societies of cosmetic science, the IFSCC has grown to 48 Member Societies in 74 Countries representing more than 16,000 individual scientists. Its mission is to support the global community of cosmetic scientists through the dissemination of scientific findings, educational offerings and an annual scientific Congress or Conference at which IFSCC awards and prizes are presented.



The Road to China –

Part One



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by Catherine Cervasio

China. It's a region which has become increasingly in the headlines – never more so in fact than during the past two years, no coincidence since the signing of the historic, Australia China Free Trade Agreement, whose two year anniversary occurs in December 2017.

As one of the early adopters of the China opportunity, I am often asked to share my experience of exporting Aromababy, with fellow SMEs wanting to understand more about working in the region. Over these next two articles, I will cover some of my personal observations and share some insights from leading organizations who are riding the China wave.

Touted as the single, largest opportunity for Australian exporters, with infant formula/dairy, honey, nutritional supplements, cosmetics/

beauty and mother/baby amongst the most sought-after categories, clearly the personal care space represents an enormous opportunity for those who can get the formula right. Australia is considered 'clean, green and honest' by Chinese consumers.

With a booming middle class and increasing spending power, research conducted by Mckinsey* reveals that by 2022, the Chinese upper middle class (household income of RMB 106,000 to 229,000) will increase to 54% of urban households, up from just 14% in 2012.

China's recent Alibaba 'singles day' event generated a whopping A\$33 billion in 24 hours. Originally starting as a day for China's youth who were not in a relationship to celebrate being, well 'single' back in the mid 1990s, November 11 has transformed to become

more widely known as a mega shopping day. The literal translation of Guanggunn Jai is single sticks – coming from the 4 ones in the date November 11 (1111). With China's female population long outnumbering males, it was a way for young, single men to get together and have fun. Its estimated that by 2020 there will be 35 million more men under the age of 30 in China than there



will be women, in part as a result of the country's long standing one-child policy which favoured sons. As the Singles Day phenomenon grew, Jack Ma's company Alibaba adopted the date for their online marketplace bonanza and trademarked the term Double 11 in 2012. The years to follow would see this date heavily marketed by Alibaba and well surpass other major online shopping sales events including Black Friday and Cyber Monday (USA).

Whilst China may not be for the faint-hearted, with even some larger organizations still only dipping their 'toe in the water', nor is it impossible as an export sales channel. I truly believe success in exporting to China is largely a result of solid preparation and then an ability to exercise patience. The potential market is so large, with a population of almost 1.4 billion and close to 18 million births in 2016, that should you capture even a fraction of the market, for

example, in one province, it can prove lucrative.

My China export experience began a decade ago – before the appeal of “brand Australia”, before ecommerce or the rise of Alibaba's Tmall and before what we now refer to as 'daigou'. Together with approximately 1200 small shops run by local Chinese, shipping Australian goods overseas to Chinese consumers, there are an estimated 40,000 local Chinese (many of them, students) who act as 'personal shoppers', buying and selling specific Australian goods on behalf of their friends in China. With a complex regulatory system, this 'grey channel' as it is often referred, enables small parcels of goods to be shipped easily and tax free to consumers in China, without the need for registration compliance or VAT.

I want to share my six Ps of exporting to China – *Passion, Preparation, Product, Positioning, Participation* and *Persistence*.

Passion, in my opinion, is an absolute necessity. Anyone can develop a new raw material, an innovative product or a complete brand however without a unique (and genuine) story together with an ability to convey a passionate delivery of that story, it will likely struggle to stand out in a market as vast as China. You need to be sure you can articulate not only what is unique



about your products, but also how your product will benefit a consumer. And you need to be authentic. It is simple for Chinese consumers to tap into their vast networks or research online, to find out what exactly a brand stands for, when it was developed, what stores it is selling in and how it is perceived in the local (Australian) market.

Next up is preparation. Exporting to a market the size of China will require additional considerations. First up should be IP protection – this includes not only

your brand name/trade name as it is used in the market here but also potentially a ‘sounds like’ interpretation and a Chinese character translation. You will need to register an official Wechat account and need a Chinese bank account in order to do so. Your website may not be visible in China so a thorough check of how your site appears (if at all) is crucial before investing in bi-lingual translation of your English copy. Businesses should also seek to register social media handles which translate from Chinese to English and

of course, relevant domain names in the countries where you expect to sell (this could mean, for example, Hong Kong or Taiwan).

In my second part of this article I will share my views on the various ways to sell to China including whether you should invest in trade show participation, some practical tips on travelling to China for business and business etiquette.

Reference

★ McKinsey.com





sunscreen highlights

by John Staton

In vitro SPF Testing – the choices

The ISO process has resulted in the now widely used test methods for SPF and for In vitro UVAPF (Broad Spectrum) and to a lesser extent, the method for In Vivo UVAPF. Throughout the now almost 10 years of this process, various groups of scientists have worked on the missing link – the finalization of an ISO acceptable method for In vitro SPF.

The current status of this work with the In vitro method is that we have 4 potential candidates for methods based on synthetic substrates and a 5th “hybrid” method which uses human test volunteers but which does not involve irradiation of the skin.

None on these methods have been formally adopted for use by a country member of the ISO Working Group and all are essentially derived from “in house” methods.

Whilst the current focus is on cross-validation of theoretically all of these

5, it would appear to this observer that only 2 are currently really only being actively promoted. The first of these is based on the previously ISO rejected method of the work on ISO 24445 “The French method”. The more recently offered Direct Reflectance Spectroscopy method “DRS” is following a differing independent process of development with a separate group of experts.

At the most recent ISO plenary in Colombia, the French method was eagerly promoted by delegates from some of the E.U. community, whilst the majority seemed to be in favour of continuing to keep the options open for evaluating most of the alternatives on offer for the important parameter of correlation with In Vivo SPF Method ISO 24444.

Frustration with lack of ISO progress may result in the French method moving to the C.E.N. environment within the

E.U. However, the issue then remains of the process by which a method published by C.E.N. may move back to the international arena which is really the only forum for harmonization.

Once the potential for adoption has been agreed at the ISO Working Group 7 level, the process of actually drafting the formal methodology document will still have to be undertaken, giving a timeline of at least 3 to 4 years. Further questions remain – how to test for photo stability, water resistance and more difficult product forms such as powders.

Overall, the main issue still remains the question of acceptability of In vitro over In vivo SPF testing for the validation of sunscreen performance claims. If and when this method becomes available, adoption is likely to be an issue and more likely on a country by country basis than the comparatively smooth process than that which applied for the In vivo SPF test method.

Matrix of In vitro SPF Test Methods under review

In vitro SPF Method ISO Expert	Dr. Yoshi Miura	Dr. Sergio Oliveria	Dr. Kolbe, Batzer Dr. Stephanie Acker	Dr. Dominique Lutz	Dr. Eduardo Ruvalo
Geographic Development	Japan	Brazil	Germany	France	Brazil: USA
Substrate	Moulded PMMA 17 um skin profile	Collagen	Sand Blasted PMMA	HD 6 and SB 6 PMAA	Skin on Test Subjects
Application Rate	2 mg/sq cm	0.75 mg/sq cm	1.2 mg/sq cm	1.3 mg/sq cm 1.2 mg /sq cm	2 mg/sq cm
Application Method	Manual with pressure control	small droplets spread with mechanical pencil	ISO 24443 Method	Robotics	ISO 24444 Method
Measurement instrumentation	UV Spectro	UV Spectro	UV Spectro	UV Spectro	Direct Reflectance Spectro



Management Liability Insurance – why every business should have it

by James Gillard



What is Management Liability Insurance?

Management Liability insurance includes coverage for unfair dismissal, lack of advancement or even sexual or workplace discrimination. Anyone who operates a business is exposed to hundreds of pieces of legislation, from Local, State and Federal Authorities. Business owners should be aware of the sheer breadth of exposures they face in the daily operations of running their business. Management Liability policies often also extend to cover such things as crisis management, theft of company funds (fidelity) and government authority fines. (Statutory Liability)

Major Components and Covers of Management Liability

- Insured Persons Liability
- Company Liability

- Employment Practices Liability
- Statutory Liability
- Crime (Fidelity)
- Internet Liability
- Taxation Audit
- Crisis Loss
- Cyber

Why I need it

Small to medium enterprises are being drawn increasingly into the contest of litigation, business downtime and quickly escalating legal costs. Surveys have shown a low percentage of businesses adequately protect their Owners, Directors and Management from the legal consequences of liability risks that may arise from their daily actions. Most companies insure the tangible exposures of property damage and public liability but neglect to insure against economic loss. Any business can

experience unwelcome surprises that could potentially threaten their financial position, and in some instances, this creates possible personal exposure for the owners and managers. Once a business starts employing staff, have a director or shareholders, they should consider taking

out Management Liability insurance. Local, State and Federal legislations and regulations that govern how your business should be conducted, are becoming increasingly more complex, leaving not just bosses at risk of exposure but employees as well. Remember, from as little as \$800 Small Businesses can protect themselves against such high claim costs being incurred.

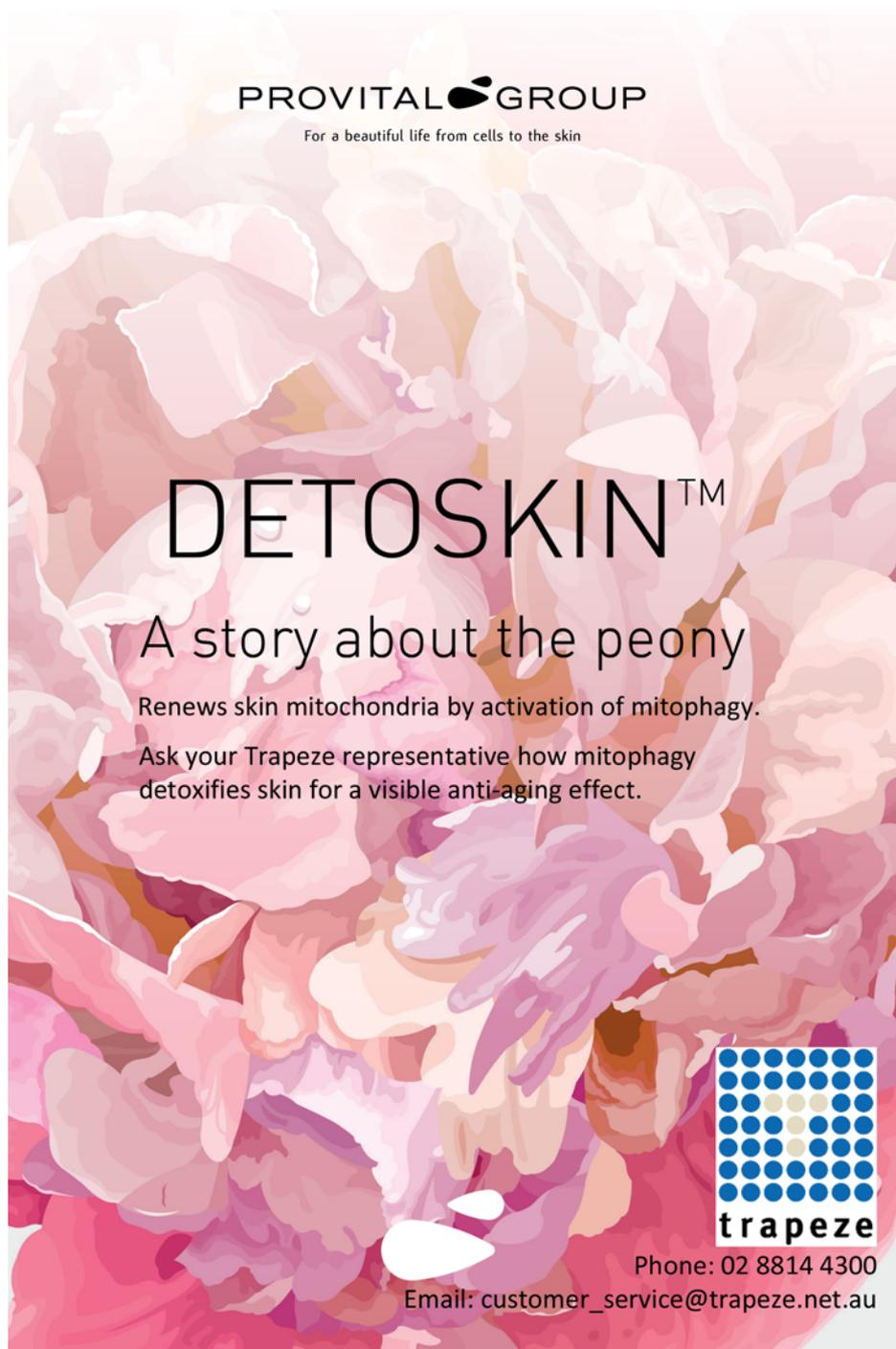
Case Study

A Business employed 45 staff and dismissed an employee for wilful Misconduct. Despite strong grounds, the business was issued with proceedings from Fairwork Australia for alleged Unfair Dismissal and the Federal Court for alleged under payment by the employer. The Management Liability insurer had contracted a legal firm to

represent the Business. The estimated Legal and other costs to the Business was \$120,000 yet the Business thanks to having Management Liability Insurance only paid the excess which was \$10,000.

One call to 'Insurance Made Easy' insurance brokers

To learn more about how you can protect your Business with Management Liability insurance cover, engage with a professional insurance advisor to help you make the best choices. Your business is too valuable to risk it all in one unforeseen event. If you are unsure about your current coverage and need a professional advisor to review your policy or risk, please contact the friendly team at IME Insurance Brokers – Insurance Made Easy for personal assistance to discuss your own individual circumstances, 1800 641 260 or visit our website www.imeinsurance.com.au.



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A world first in response to consumer demand on palm oil

To celebrate and coincide with world orang-utan day in August 2017, the world's first International Palm Oil Free Certification Accreditation Programme (POFCAP) was launched. Australia, England, Wales, Scotland & Northern Ireland were the first five countries to adopt the *Certification Trademark* following approval by their respective IP authorities. Recently, approval was also granted in Austria and Spain. A further 12 nations have applications pending in a landmark move in response to consumer demand for transparency in labelling on the topical issue. www.palmoilfreecertification.org

With the goal being to sit within the same realm as other respected certification trademarks such as Cruelty Free, Certified Organic, Vegan and Fair Trade, POFCAP's team, aside from working with trademark offices across the globe, is currently liaising with a number of large and small companies that are seeking to certify products. Jabrick – the cheeky little orang-utan on the logo, who was herself a victim of deforestation, will one day look out at shoppers from supermarket shelves across the world. (Jabrick's full story is on the

POFCAP website).

Several companies have already gone through the certification process and have been certified Palm Oil Free and there are more undergoing the certification process.

The team behind POFCAP comprises a group of passionate women who have educated, campaigned, fundraised for and championed the numerous issues surrounding Palm Oil for many years. The complicated and contentious concerns surrounding *the method of production* of the majority of Palm Oil produced, the impact that deforestation has on the rainforests and wildlife – and in turn consumer demand for such accreditation was the driving force behind the motivation to research, develop and trademark the certification process that has evolved over the past eight years.

Use of Palm Oil is exceptionally widespread with the majority of food, cosmetics and, household cleaning products containing either palm oil or one of its many *thousands* of derivatives. The topic evokes robust discussion around both health and environmental issues with deforestation, loss of habitat and resultant wildlife deaths leading the agenda.





“Members of the POFCAP team have been involved with researching and educating people on Palm Oil production for a long time and have been increasingly inundated with people asking where or how they could buy palm oil free products. With no independent *palm oil free certification programme* or trademark in existence globally we decided the only way forward was to create one. Have removed my name.

Whilst on a global level there are many organisations working hard to regulate and improve the deforestation issues surrounding Palm Oil, it is slow and arduous for many complex reasons. After a decade of work, *a small percent* of all palm oil used can be classed as ‘non-conflict’ however many millions of hectares of rainforest have undoubtedly been saved by their efforts.

Consumers can be assured that if they see the Palm Oil Free Certification Trademark featuring young Jabrick, that the product has been thoroughly researched on every aspect of its ingredients. It is time-consuming and complicated (see overview below). It should also be noted the certification is product based not brand based with many companies having both Palm Oil

Free as well as products containing either palm oil or its derivatives within their portfolio.

About the certification process

Once a company applies for certification of its product(s), it is submitted to the Palm Oil Free Certification Accreditation Programme’s (POFCAP’s) Certification process which has evolved over many years of research and data collection. It is extensive and involves thoroughly exploring and tracing all potential palm oil (and its derivatives) ingredients of a product back to their source utilising a number of trusted *methods and resources* until a definitive answer on its origin is found. POFCAP does not certify a product solely on ‘a palm oil free’ statement from an ingredient manufacturer as experience and research has shown this method does not always produce correct results.

‘Back engineering’ a product is also not 100% reliable. It may reveal a product’s ingredients but not its source. This method of testing is not specific enough to detect the thousands of ingredients made from palm oil.

To satisfy its standards of certification, POFCAP has developed its own extensive and thorough research

methods so consumers can be sure that a POFCAP certified product has had every ingredient and its derivatives thoroughly checked to be Palm Oil Free. If any doubt exists, the product is not certified.

About the POF team

The Palm Oil Free Certification Accreditation Programme is managed by a not for profit organisation comprising professionals from the business, education, research and government sectors with one common goal. All have worked tirelessly – and voluntarily toward the worldwide launch of this certification trademark. All profits from the program will be donated to a number of selected NGO’s which may be viewed on the website.

Issued for by
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... being a big fish

by Wendy Free

It's nice here in the Antipodean pond, pleasantly comfortable; nothing changes and we just go on as we were a decade ago (when the Cosmetic Standard was introduced), 2 decades ago (when we started consulting the Australian Inventory of Chemical substances), and even 3 decades ago (ok it was only 28 years ago, in 1989 when 'cosmetics' were first defined in the INCA Act).

But what if there were changes in the air?

For example.

Last month, the 18th Edition of the SUSMP (Standard for the Uniform Scheduling of Medicines and Poisons) October 2017 was published¹. For those of us who are languishing in a warm, sub-tropical lagoon it might be time to grab the towel and nip back to the desk to make a couple of checks. This one includes some new substances of specific interest to the cosmetics industry, such as

Schedule 6

METHYLISOTHIAZO- **LINONE** *except:*

- in rinse-off cosmetic preparations or therapeutic goods intended for topical rinse-off application

containing 0.0015 per cent or less of MI; or

- in other preparations that are not intended for direct application to the skin containing 0.1 per cent or less of MI.

* This means if you are using the preservative Methylisothiazolinone present in premixes such as Kathon CG² or Microcare³ MT, MPE, MTB (etc) then you need to check if your product is now considered a scheduled poison.

Schedule 6

CHLOROACETAMIDE⁴ (no cut off, no exceptions)

* In Australia chloroacetamide used as a preservative in more than brand of sorbolene lotion marketed for use in sensitive skin, after all it was the original preservative suggested in the Australian Pharmaceutical Formulary. Most of us do tend to avoid it because it smells quite unpleasant; now we have even more reason avoid it.

Schedule 7

DANGEROUS POISON
EPIDERMAL GROWTH FACTOR, including SH-OLIGOPEPTIDE-1,



RH-OLIGOPEPTIDE-1 at concentrations above 0.0002% or 2mg/L (Feb 2018)...(oh dear! I wonder what this means for other peptides?)

* Schedule 7 products are defined as "Substances with a high potential for causing harm at low exposure and which require special precautions during manufacture, handling or use. These poisons should be available only to specialised or authorised users who have the skills necessary to handle them safely. Special regulations restricting their availability, possession, storage or use may apply".

So if you are importing, supplying or using the bulk peptide ingredients you may need to consider how this could

potentially impact your business (Ie do you need to apply for a high level poisons handling licence?)

That beach towel beside the Antipodean pond is looking good right now, don't you agree, but wait!... **also pending are**

Schedule 6

POISON BENZYL SALICYLATE⁵ in cosmetic and domestic products

except:

- a) in leave-on preparations containing 0.001 per cent or less of benzyl salicylate when labelled with the following statement: **WARNING** – This product contains ingredients which may cause skin sensitisation to certain individuals; or
- b) in rinse-off products containing 0.01 per cent or less of benzyl salicylate when labelled with the following statement: **WARNING** – This product contains ingredients which may cause skin sensitisation to certain individuals.

Schedule 6

POISON CINNAMALDEHYDE⁶ +

If in eyes wash out immediately with water + Repeated exposure may cause sensitisation + Will irritate eyes + Avoid contact with skin

except:

- a) in **domestic preparations** not intended for direct skin contact containing 0.4 per cent or less of cinnamaldehyde **when included in the list of ingredients**⁷; or
- b) in leave-on cosmetic and personal care preparations containing 0.001 per cent or less of cinnamaldehyde; or
- c) in rinse-off cosmetic and personal

care preparations containing 0.01 per cent or less of cinnamaldehyde.

Schedule 6

POISON ANISE ALCOHOL⁸ in cosmetic and domestic products; + If in eyes wash out immediately with water + Repeated exposure may cause sensitisation

except:

- a) in leave-on preparations containing 0.001 per cent or less of anise alcohol when labelled with the following statement: This product contains ingredients which may cause skin sensitisation to certain individuals; or
- b) in wash-off preparations containing 0.01 per cent or less of anise alcohol when labelled with the following statement: This product contains ingredients which may cause skin sensitisation to certain individuals;

Schedule 6

POISON TRANS-ANETHOLE⁹ in cosmetic and domestic products

except in preparations containing 10 per cent or less of trans-anethole.

* Trans-anethole is a component of a number of essential oils, such as anise, fennel, anise myrtle, dill, coriander, guarana, camphor and star anise. Trans-anethole is also present in absinthe, magnolia blossoms and liquorice and is closely related to estragole, present in tarragon and basil.

The poisons schedule places distribution restrictions on substances in schedules 2, 3, 4, 7, 8, 9 and 10 and *packaging and labelling restrictions* on

products in Schedules 5 (CAUTION) and 6 (POISON), so if your product is now S6 it needs to be labelled as **POISON**, in bold font, as the first line of the main label in san serif font, at least 6 mm high...immediately followed by **KEEP OUT OF EACH OF CHILDREN**...possibly followed by **READ SAFETY DIRECTIONS**... and the container must comply with Australian Standard AS 2216- 1997, entitled Packaging for poisonous substances...please see the poison schedule for specific details.

If that rocks your boat, imagine if your product was just a month ago a listed medicine and is now no longer eligible for listing because of these changes... **oooh nasty.**

A reminder too.

As of 1 August 2018, (ie in the next 9 months) the rules applying to manufactured or imported sunscreens finally tick over to having mandatory compliance with AS/NZS2604:2012, this means that its now or never to update your older sunscreen products.

If you or your product is thinking about venturing outside this little pond, it's comforting to know that some things are much the same including

- Therapeutic claims are prohibited and
- Trade on protected species is still prohibited¹⁰ and
- There are obligations for reporting adverse events and
- The local supplier is responsible for the products' suitability (except in the USA where it's the MANUFACTURER!)

But beware some things are also VERY

Apparent Complexity	Locality	Importer Register	Ingredient			Product				Label		Other
			Pre-approval	Safety	Quality	Registration	Quality	Safety	Efficacy	Specified	Multi-lingual	
Very Low	Hong Kong	X	X	X	X	X	X	X	✓	X	X	Consumer law
Low	Australia	✓	✓	✓	X	X	X	✓	✓	✓	X	Yes
Low	USA	X	X	✓	✓	X	X	✓	✓	✓	X	Yes
Moderate	Canada	✓	✓	✓	X	X	X	X	✓	✓	✓	Yes
Moderate	New Zealand	X	✓	✓	X	✓	X	✓	✓	✓	X	Yes
High	ASEAN	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	cGMP
High	South Korea	✓	✓	✓	✓	✓	✓	✓	✓	✓	X	cGMP
High	Japan	✓	✓	✓	✓	✓	✓	✓	✓	✓	X	cGMP
High	EU	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	cGMP

DIFFERENT so far as cosmetics go. In each jurisdiction there are different requirements and obligations pertaining to ingredients, products, labelling and manufacture. The table aside give a VERY BRIEF summary of the differences.

So before you return to the Antipodean Pond, let's see how much you know about our own muddy waters with a short quiz?

1) Which of these plants is CITES¹¹ protected?¹²

- a) *Agave parviflora*
- b) *Euphorbia spp*
- c) *Panax ginseng*
- d) *Prunus africana*

2) If you are exporting, which ingredient may need written authority¹³ to be exported in a formulated cosmetic¹⁴?

- a) Honey
- b) *Backhousia citriodora* (Lemon Ironwood) oil
- c) *Dromaius novaehollandiae* (emu) oil
- d) *Eucalyptus globulus* leaf
- e) *Macadamia integrifolia* oil

3) Which are scheduled poisons?¹⁵

- a) Amidopropyl Betaine
- b) Benzocaine
- c) Clove Oil
- d) Need Oil (AZADIRACHTA INDICA)
- e) Triethanolamine

4) In Regards to NICNAS, which one of the following is NOT considered to be TIER I¹⁶, that is chemicals considered not to pose an 'unreasonable risk'¹⁷? (ie which of these is considered to pose 'a risk')

- a) Chromate (7-), bis[2-[[6-[[4-chloro-6-[[4-[2-(4-nitro-2-sulphophenyl)ethenyl]-3-sulphophenyl]amino]-1,3,5-triazin-2-yl]amino]-1-(hydroxy-kappa.O)-3-sulfo-2-naphthalenyl]azo-kappa.N1]benzoato(5-)-kappa.O]-, heptahydrogen
- b) Glycerides, C14-22, mono-
- c) 1-Tetradecanol

- d) Triclosan
- e) Rayon

5) Which one statement is incorrect¹⁸?

- a) The Cosmetic Standard is a legislative instrument that allows antibacterial claims under certain circumstances
- b) The fine for not labelling cosmetics with correct ingredients can exceed \$1,000,000.
- c) GHS labelling for workplace substances is mandatory in Queensland but not Victoria
- d) GHS labelling applies to consumer products
- e) In terms of mandatory reporting serious injury is defined as "Serious injury or illness is defined to mean an acute physical injury or illness requiring medical or surgical treatment by, or under the supervision of, a qualified doctor, nurse or paramedic".

Sometimes, its all a bit too much isn't it? There are just so many rules and requirements spread thinly across our wide brown land that it's really hard to keep up with all of them. (After 30 years I'm still finding new ones)

Unfortunately it's also quite easy to start up a booming, fresh and exciting cosmetics business, and develop a local brand blissfully unaware that you are in the shallow end of an apparently bottomless billabong of murky and unknowable red tape. Exporters will know that even dipping your toes in the ocean brings forth a deluge of previously unknown issues, as waves of cold water guaranteed to cool even the most ardent of passions.

So perhaps either its time to go back to the Antipodean pond and use that golden sand to bury the issues OR are you ready to turn with the tides, accept that change has happened and will continue to occur, and grab a life preserver and paddle like mad?

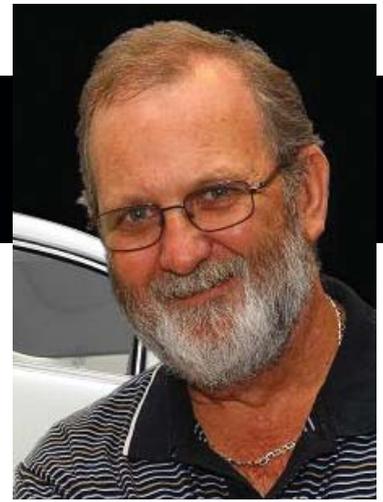
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 2 https://www.dow.com/assets/attachments/business/pcare/kathon_for_personal_care/kathon_cg/tds/kathon_cg.pdf

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 4 <https://www.tga.gov.au/book-page/38-chloroacetamide>
 5 <https://www.tga.gov.au/book-page/41-benzyl-salicylate-0>
 6 <https://www.tga.gov.au/book-page/42-cinnamaldehyde>
 7 Hang on, since when did 'domestic product' carry ingredient's lists?
 8 <https://www.tga.gov.au/book-page/43-anise-alcohol>
 9 <https://www.tga.gov.au/book-page/45-trans-anethole-0>
 10 <https://www.cites.org>
 11 <https://cites.org/sites/default/files/eng/app/2017/E-Appendices-2017-10-04.pdf>
 12 All are protected, note however that in regards to Panax Ginseng Only the population of the Russian Federation is protected; no other population is included in the Appendices.
 13 List of Exempt Native Specimens Instrument 2001 made under section 303DB of the Environment Protection and Biodiversity Conservation Act 1999
 14 The answer is d, the gum leaves, only the oil is specified in the List of exempt native species
 15 All are scheduled a) In schedule 6; b) S2 and S4 c) schedules 5 and 6 d) Schedule 5 and 10 e) It's in schedules 4 & 5 under TROLAMINE
 16 <https://www.nicnas.gov.au/chemical-information/imap-assessments/imap-assessments/human-health-assessments>
 17 Triclosan is NOT Tier I, it was one of the first chemicals assessed by NICNAS, there is a fact sheet here <https://www.nicnas.gov.au/chemical-information/factsheets/chemical-name/triclosan> and its also a S6 scheduled poison
 18 d is incorrect; according to this site, only SUSMP applies to consumer products <https://www.safeworkaustralia.gov.au/labelling#ghs-transition-period> e) see

As always I'm happy to answer your questions and concerns (obligation free) Little fish;

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by Ric Williams

Part 38 –

Thickeners

From Formulator's Forum Part 3 "Manufacturing" I pointed out what can affect the viscosity of emulsions. To repeat this here;

The main factors that affect the viscosity of emulsions are based on further factors within five main categories are;

- a) Internal or Dispersed Phase
- b) External or Continuous Phase
- c) The Emulsifying Agent(s)
- d) Additional Stabilising Agent(s)
- e) Manufacturing Methods

Each factor does not act independently and the interpretation of emulsion viscosity data is complicated by the fact that particles can deform under shear depending on the nature of the interfacial film. Emulsions are complex systems, often highly structured, and at phase boundaries or on the point of inversion are very sensitive to small perturbations in the system.

a) Internal Phase

i) Volume concentration

Increasing the volume of the internal phase will give a gradual rise in viscosity of the emulsion, up to a point where

the internal phase globules are packed as closely as possible, thereby restricting the movement of particles in the liquid ie. resulting in increased viscosity. The higher the Phase Volume, the more likely the liquid is to become the external phase (dispersion medium). However, the liquid with the higher phase volume needs not necessarily be the dispersion medium. If the emulsion consisted of closely packed uniform spherical particles, the dispersed medium would occupy 74% of the total volume (theoretical maximum for a High Internal Phase Emulsion (HIPE)). Emulsions can be made with this and even higher ratios however instability increases and the emulsion is likely to "flip" and convert from "Oil-in-Water" to "Water-in-Oil" or vice versa.

ii) Viscosity of the Internal Phase

Increasing the viscosity of the internal phase is achieved by a variety of methods. For "Water-in-Oil" emulsions this is usually done by dissolving a hydrocolloid (ie gel based thickener) in the Water Phase before emulsification. For "Oil-in-Water" emulsions the simplest method of increasing the viscosity of the internal or dispersed phase is by increasing the melting point of the internal phase ie. by increasing the ration of higher melting point oils or waxes. The most common materials used are Cetyl Alcohol, Stearyl Alcohol, Ethylene Glycol Stearate and Beeswax. The overall effect is to reduce the deformation of the internal phase globules, hence restricting their movement by not allowing them to pass by other globules.

iii) Inter-particle Interference

A simple method of achieving this in "Water-in-Oil" emulsions is to add an electrolyte to the Water phase before

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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 and I will publish your comments.

emulsification. This adds an electric charge to the surface of the dispersed or internal phase and as like charges repel it will restrict movement of one globule past another. This is difficult to achieve with an “Oil-in-Water” emulsion, as oils by nature are only weakly charged if at all.

iv) Particle Size and Size Distribution

The viscosity of the emulsion can be increased by reducing the particle size and/or standardising the size distribution of the internal phase globules. This allows uniform packing and greater surface area of the particles, thereby providing a reduced tendency to move, and hence, a greater viscosity. This can be achieved by mechanical homogenisation of the emulsion after it is formed, or by altering the order of addition, or by adjusting the quantity and/or efficiency of the emulsifier blend. If the concentration of internal phase is low then this does not tend to have much effect because there are insufficient particles to cause any interference to movement.

v) Interfacial Tension of the Internal Phase Particles

By careful selection of the emulsifier system, usually by selecting multiple emulsifiers of varying size you can increase the rigidity of the internal phase globule surface thereby restricting movement of the internal phase particles and hence increase viscosity. You will also notice this effect by varying the concentration of the emulsifier. Apart from causing instability, too little emulsifier will allow the internal phase

“droplets” to deform easily and allow movement within the emulsion. A low viscosity results. The perfect amount of emulsifier (and this is a complex thing to pre-determine and is a unique number based on emulsifier type, internal (and external) phase composition, and special additives (alcohols, glycols, silicones, etc.).

vi) Chemical Composition

Apart from changes in composition involving higher or lower melting points changes in the size of the molecular components and the chemical type play a major role. For simplicity we will talk about “Oil-in-Water” emulsions for this exercise, but the same tenets apply also to “Water-in-Oil” emulsions.

Some high molecular weight esters (eg. Jojoba Oil and to some extent vegetable oils), while larger than some other oils and waxes, have little effect on viscosity. This is to do with the packing of molecules inside the internal globule. If the oil or wax can fit into the internal globule without increasing viscosity of the internal phase and without increasing the size or interfacial tension of the globule then it should have no effect on the overall viscosity, and vice versa.

Differences in the chemical type of oils and waxes have different effects on emulsions. For example adding paraffins to emulsions increases viscosity due to adding bulk to (and not increasing surface area of) the internal phase. Note; it also increases the opacity of the emulsion. Adding Stearic Acid,



The advertisement features a photograph of three women with smooth skin, smiling and looking towards the camera. They are wearing light-colored, possibly white, tank tops. The background is a soft, light purple. In the top right corner, there is a logo for BRENNTAG with a red and blue swoosh. Below the photograph, a large, colorful banner with a gradient from orange to blue contains the text "Revealing the Power of Beauty" in white, bold, sans-serif font.

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Cetyl Alcohol and Stearyl Alcohol increases viscosity quite dramatically as they not only add significantly to the internal phase bulk (due to the moderately sized lipophilic tail) but possess a small hydrophilic “head” and act as co-emulsifying agents at the oil-water interface providing a tighter more rigid surface, not by increasing interfacial tension but, due to the small lipophilic heads occupying the spaces between larger emulsifiers, by providing a more compact and impervious barrier between the phases, Stearyl Alcohol being more effective than Cetyl Alcohol. Glyceryl Monostearate and Stearic Acid on the other hand, although possessing a similar lipophilic tail to Stearyl Alcohol have a much larger hydrophilic head and will expand the size of the internal globule by increasing its surface area. The consequence of adding Glyceryl Monostearate is to increase opacity and “body” (or creaminess) of the emulsion with little effect on viscosity. The inclusion of 10% Mineral Oil is reported to prevent gelling of “Oil-in-Water” emulsions thickened with Cetyl Alcohol and Glyceryl Monostearate.

b) Continuous or External Phase

i) Viscosity of the Continuous or External Phase

The usual method of increasing the viscosity of the emulsion is, before emulsification, to add a hydrocolloid into the water of the Continuous or External Phase in an “Oil-in-Water” emulsion. Typical hydrocolloids are cellulose derivatives (CMC, Hydroxyethylcellulose, Xanthan Gum, Guar Gum), Laponite, Sodium Aluminium Silicate, Carbomer, or a myriad of new polymers now available. For a “Water-in-Oil” emulsion you increase the viscosity of the external phase much the same as you do for the internal phase of an “Oil-in-Water” emulsion – by increasing the melting point of the components in the external phase (replacing oils with waxes and waxes with higher melting point waxes). There is also now, some materials that can thicken oil phases similar to gels and colloids can do for water. A typical example is Dextrin Palmitate.

ii) Chemical Constitution and Polarity Effect on the Potential Energy of Interaction between Particles

An interesting method for increasing the viscosity of an “Oil-in-Water” emulsion is to reduce the water content by replacing it with such soluble materials as Glycerine. This creates products called Glycerine Creams that can be clear or opaque. The Glycerine reduces the water content and hence gives an apparent increase in the oil to water ratio, thus causing viscosity rises.

Other methods involve the creation of soaps and other chemical reactions – the effect of soap formation (usually from the reaction of Triethanolamine or Sodium/Potassium Hydroxide in the Water Phase and Stearic Acid in the Oil Phase of an “Oil-in-Water” emulsion) acts as a primary emulsifier adding both bulk and ionic character to both phases. Due to its apparent high HLB (uncalculated) this system is only used in “Oil-in-Water” emulsions.

iii) Electroviscous Effect

An increased electrolyte (salt) concentration in the aqueous continuous media of an “Oil-in-Water” emulsion will increase the viscosity by increasing electrical charge effects on the surface of the particles. Charged particles will have greater difficulty passing by each other in a semi-fluid environment, hence a reduced tendency to move results in an increased apparent viscosity. By this effect we do note that altering the pH of an emulsion will increase the viscosity, as most acids and bases increase the electrolyte content. In most cases the use of Triethanolamine or Lactic Acid to adjust pH will neither cause instability nor affect the stability as the organic bases and acids have a reduced effect on the salt electrolyte content. Care must be taken though that higher levels of electrolytes will destabilise some emulsions.

iv) Additional Stabilising Agents

I have mentioned above the usual method of increasing the viscosity of the emulsion is, before emulsification, to add a hydrocolloid into the water of the Continuous or External Phase in an “Oil-in-Water” emulsion. Typical hydrocolloids are Laponite, Sodium Aluminium Silicate. The hydrocolloids, used in “Oil-in-Water” emulsions set up a gel network (similar to a three-dimensional spiderweb) which reduces the mobility of the internal phase globules, hence increases its apparent viscosity. Also because of the action of preventing the internal phase droplets colliding and coalescing they can stabilise these emulsions.

Also the addition of pigments (Iron Oxides, Titanium Dioxide, Zinc Oxide) or clays (Kaolin, Zeolite) will have similar effects. These insoluble particles (particularly if they have some ionic character) find themselves at the interface between oil and water phases, increasing the strength of the interface (reducing distortion), providing a charged surface (electroviscous effect) and increasing the bulk of the internal phase. Viscosity increases can result from all these effects.

c) Emulsifying Agent

i) Chemical Constitution

Obviously if an emulsifying system creates any situation mentioned above then this would have an effect on viscosity.

- If it adds an electrical charge to the internal droplet phase then this may increase viscosity.

- some emulsifiers, by their nature, create internal phase globules which are smaller than others.

- eg. Alkyl Sulfates create thicker emulsions than those based on Nonionics (probably due to allowing a more closely packed environment at the droplet surface (mentioned above); To decrease the internal phase globule size when working with a non-ionic emulsifier a small quantity of Cetyl Phosphate derivatives (eg. Potassium Cetyl Phosphate) suddenly creates this effect. When internal globules are made smaller they enter a more closely packed arrangement and hence increase viscosity.

- some emulsifiers, by their nature, create internal phase globules which are larger than others.

eg. the effect of soap formation (usually from the reaction of Triethanolamine in the Water Phase and Stearic Acid in the Oil Phase of an “Oil-in-Water” emulsion) acts as a primary emulsifier adding both bulk and ionic character to both phases. Modern “organic” emulsifiers also fit into this scenario eg Cetearyl Oliviate/Sorbitan Oliviate.

ii) Emulsifier Concentration

As an emulsifier is added (from zero) the emulsion begins to form, the globules become a regular size and the viscosity increases. However as the concentration of emulsifier is increased further (past the ideal concentration), the amount of emulsifier becomes too much for the amount of internal phase to form uniform particles, the surface of the internal globules becomes distorted and even flexible, and viscosity begins to drop. This is particularly observed with non-ionic emulsifiers rather than anionics or cationics. In the majority of cases with anionics or cationics the droplet size continues to reduce until the size of the internal phase globules becomes so small it is invisible to the naked eye and the emulsion becomes a clear “solution”.

iii) Solubility of the emulsifier in the internal or external phase

As with the case of HLB effects the HLB chart is a scale of 0 to 20 – for “Oil-in-Water” emulsions a HLB of 20 will exhibit

smaller particle size and increased viscosity over a HLB of 10. For “Water-in-Oil” emulsions a HLB of 1 will exhibit smaller particle size and increased viscosity over a HLB of 10.” This is mainly due to the emulsifier being more soluble in Water as the HLB approaches 20 and more soluble in oil as the HLB approaches 0, respectively. There are exceptions to this in that if the emulsifier is insufficiently soluble in either phase (as can happen when the HLB approaches 10 from either side) then it can act as a third phase around the internal globules and due to steric hindrance may in fact increase viscosity. If the concentration of internal phase is low but the concentration of emulsifier is high, then this tends to have much more effect because there is insufficient internal phase to “solubilise” the emulsifier and micelles or lamellar phases of emulsifier may form causing interference to movement and increasing viscosity.

d) Manufacturing Methods

i) Type of Mixer and/or Homogenisation

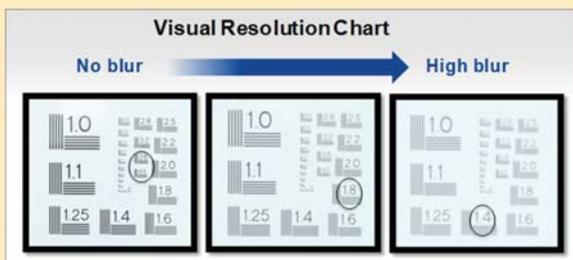
The higher the shear on the emulsion at the point of emulsification (the point at which the internal phase is added to the continuous phase) and through the temperature range where the waxes pass their melting point, the smaller the droplet size will be. From above I mentioned that the viscosity of the emulsion can be increased by reducing the particle size and/or standardising the size distribution of the internal phase globules. This allows uniform packing and greater surface

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area of the particles, thereby providing a reduced tendency to move, and hence, a greater viscosity. This can be achieved by mechanical homogenisation of the emulsion while it is being formed. High speed stirring is more efficient than slow speed, stirring blades with sharp (cutting) edges are more efficient than paddle type stirrers, however most chemists use a homogeniser in addition to a stirrer. Various forms exist, the most popular are

- a) Silverson type – a high speed rotor (3,000-10,000 rpm) forces the liquid through a fine mesh screen breaking down the particle size.
- b) Colloid Mill or Roll Mill – the liquid is forced through two rotating plates adjust to a gap equal to the desired size of the internal particle. This is mostly used to grind pigments in colour cosmetics.
- c) Impulse type – where a fine jet of liquid is forced, at very high speed, onto a metal plate, ball or knife, smashing or cutting the particles into smaller units.
- d) Ball Mill – similar to the Colloid Mill but that the liquid is forced through a chamber of ball bearings where the liquid causes slight movement with the ball bearings crushing the particles as they pass by.

ii) Temperature and Rate of Cooling

The higher the temperature at the point of emulsification

the more efficient the procedure will be and a higher viscosity generally results. However the heat stability of the components and the cost of energy will be balanced with the possibility of using alternate methods as a means of increasing viscosity. Generally a temperature of 10°C above the highest melting point wax or reaction product (eg in the formation of soap as the emulsifier) is selected as the most ideal temperature to use. ie the temperatures (of both phases), at the point of emulsification, must be sufficient to maintain all phases in a liquid state. This is critical to prevent the waxes, soap, etc. from solidifying before complete emulsification is obtained.

As the rate of cooling of the emulsion is increased the “wax crystals” (solidified internal phase particles such as Cetyl Alcohol) will become smaller, allowing better packing arrangements of the droplets and an increase in viscosity (and stability).

The exact control of temperature at the point of emulsification, cooling rates (temperature drop over time) and the temperature at which final stirring has ceased are all essential to control the final viscosity.

Now what can we use below is a list of “thickeners” not mentioned above;

a) Xanthan Gum

Xanthan gum is a water soluble polysaccharide with a wide

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variety of uses, including as a common cosmetic additive. It is a powerful thickening agent, and also has uses as a stabilizer to prevent ingredients from separating. It is produced from a range of simple sugars using a fermentation process, and derives its name from the strain of bacteria used in this: *Xanthomonas campestris*.

b) Similar “natural” water soluble gums are;

Guar Gum – made from guar beans

Sclerotium Gum – derived from the fermentation of the genus *Sclerotium*, a filamentous Mushroom

Gum Arabic, also known as Acacia Gum, is a natural gum consisting of the hardened sap of various species of the acacia tree.

Carrageenan – a family of linear sulfated polysaccharides that are extracted from red edible seaweeds. Best example is gelatinous extracts of the *Chondrus crispus* (Irish moss) seaweed that have been used in toothpastes to therapeutics.

c) Cellulose, Cellulose Derivatives

Common water soluble forms are Sodium Carboxymethylcellulose (Sodium CMC). It is synthesized by the alkali-catalyzed reaction of cellulose with chloroacetic acid.[2] The polar (organic acid) carboxyl groups render the cellulose soluble and chemically reactive, followed by purification.

d) Starch, Dextrin and derivatives

Personal care starches range from basic unmodified starches for body powders to very specialized and innovative starches for gels, films and other unique applications, such as hair sprays.

Dextrins are a group of low-molecular-weight carbohydrates produced by the hydrolysis of starch or glycogen.

An interesting “Dextrin” is Dextrin Palmitate that can be used to thicken oil.

e) Montmorillonite and kaolin clays.

Montmorillonite is a very soft phyllosilicate group of minerals that form when they precipitate from water solution as microscopic crystals, known as **Clay**. Chemically, it is hydrated sodium calcium aluminium magnesium silicate hydroxide $(\text{Na,Ca})_{0.33}(\text{Al,Mg})_2(\text{Si}_4\text{O}_{10})(\text{OH})_2 \cdot n\text{H}_2\text{O}$. Potassium, iron, and other cations are common substitutes, and the exact ratio of cations varies with source. It often occurs intermixed with chlorite, muscovite, illite, cookeite, and kaolinite.

Kaolinite is a clay mineral, with a chemical composition Hydrated Aluminium Silicate Hydroxide. Rocks that are rich in kaolinite are known as kaolin or china clay.

Veegum is Magnesium Aluminium Silicate with high viscosity profiles and is added to hot emulsions and allowed to cool. It also has emulsification properties.

Laponite, is a synthetic clay which swells to produce a clear, colorless thixotropic gel when dispersed in water. It forms lamellar structures.

f) Acrylates and acrylate derivatives

Sodium polyacrylate, also known as waterlock, is a sodium salt of polyacrylic acid. This superabsorbent polymer has the ability to absorb as much as 200 to 300 times its mass in water. While sodium neutralized polyacrylic acids are the most common form used in industry, there are also other salts available including potassium, lithium and ammonium, which can increase the viscosity of water without substantially changing its other properties, forming matrices that reduce flow characteristics, increasing viscosity. Many co-polymer forms exist greatly extending the versatility and applications.

Carbomer is a term used for a series of polymers primarily made from acrylic acid.

Neutralised Carbomers help to suspend (and distribute) an insoluble solid in a liquid. They are also used to keep emulsions from separating into their oil and liquid components; are often used to control the consistency and flow of cosmetics and personal care products and are found in a wide variety of product types including skin, hair, nail, and makeup products, as well as dentifrices.

Usual methods of application is to disperse the material in the phase where they are soluble, then heat and mix until it is dissolved (or completely dispersed) then cool. This may be time consuming and can cause undispersed gel problems (fish eyes) so an alternate method is to pre-disperse the gel into a non-solvent (eg disperse xanthan gum into glycerol) and before it thickens disperse this into water. A smooth gel generally results.

Thank you

Next Issue – the first of a four part series “*Drug Delivery from Cosmetic Emulsions*”.

Transparent Soap Technology

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Abstract

Transparency and the whiteness in products are normally perceived by people as the symbol of purity. Aesthetically, transparent soaps with good perfumes and colors look very attractive to consumers. Formulation and the process of transparent soaps are different in comparison to the normal soaps. This difference is due to the structural aspects of the product. In normal soaps, the reason for opacity is because of the larger particle size and difference in the refractive indices of the different phases present in the soaps. The principle for obtaining transparency in soap lies in the minimization of the difference in the refractive indices of the different phases present in the soap as well as the reduction of the particle size of soap below the wavelength of light. The scope of this article includes the process of manufacturing transparent soaps, theories associated with the role of soap phases and their anisotropic behavior and minimization of particle size of soap crystals.

Introduction

There are different types of transparent soaps in different shapes and colors which are available in world market. Perhaps most of the people do not know that Pears is the oldest transparent soap brand in the history of soap. Its history goes

back to 1789 and the brand is named after the name of the brand owner Andrew Pears [1]. Now transparent soaps are very common everywhere in the world and are popular because of the presence of high level of humectants particularly glycerine in the product (Figure 1). The process of making transparent soaps has become so common that most of the soap manufacturers can manufacture them in their plants. In general the transparent soaps are known for their mildness and purity and are also known as glycerine soaps [2]. There are soaps in the market which do not have glycerine but have other humectants such as propylene glycol, sorbitol etc.



Figure 1

The formulations and the process for manufacturing transparent soaps are completely different in comparison to the conventional soaps. Japan has taken lead on patenting the formulation and processing of transparent or translucent soaps. The transparency of soap depends

on both the formulation and the process. Before discussing the formulation and process of transparent soaps it is necessary to understand the fundamental reason for the transparency of the product. Mostly the transparent soaps manufactured by using conventional plodding process are not very clear and are called translucent. The soaps manufactured by melt and pour method are very clear and transparent. Manufacturing transparent/ translucent soap has become very common and any individual can manufacture these soaps based on the information available in literatures but to manufacture the good product it is important to know the physical chemistry behind the formulation.

Theory of Transparency

Glass looks transparent because the light passing through it does not get scattered, absorbed or diffracted. It can be made by metallic oxides having opaque nature. It is basically a highly amorphous system with no crystalline structure having liquid like disordered structure and is often called super cooled liquid [3-4]. On crushing, it again looks opaque. Soap is opaque if the light passing through this gets fully scattered or absorbed, and it will look transparent if there is no absorption or scattering of the light within the system. Mainly two main physical parameters help in the transparency of soap.

a) Particle Size

Light can pass through a medium if it is not getting scattered from any of the interfaces present in the system. This interface can be due to the presence of impurities, formation of different phases with different refractive indices or uneven particle size distribution in the system. If the particle size within the system is larger than that of the wave length of light, then the light will get scattered. So, the system should have small particle size which should be smaller than that of the wave length of light [5]. There are mainly two phases present in soaps which are solid phases and liquid phases. The crystalline structure and particle size of solid phases is different and affects the transparency of the product. These solid phases are formed during the processing of the soap and are referred to as Omega, Beta and delta phases [6]. A detailed description of the formation of these phases is out of the scope of this article but it is necessary to give a general idea about the particle size reduction during the processing and the formation of these phases.

In soap processing after neat soap drying under vacuum, the first phase formed is a complex of saturated long chain and saturated short chain soaps namely stearate/ palmitate and laurate respectively. These complexes have the largest particle size and are completely opaque. When soap with omega phase goes through different processing conditions it forms delta and beta phases [7-9]. Delta phase also has the second largest particle size but the beta phase has the smallest crystal size. All Phases are characterized by large angle X-ray diffraction with their d spacing as follows (Table 1) [10-11]:

Table 1: X-ray Diffraction Fingerprints of different Soap Phases

Phase's	d-Value (Å)	2θ
Beta	2.75	32.5
Omega	2.95	30.2
Delta	2.85, 3.55	25.05

A typical large angle X-ray diffraction of soap is given in Figure 2.

The Large angle X-ray Diffraction Pattern for a typical Soap

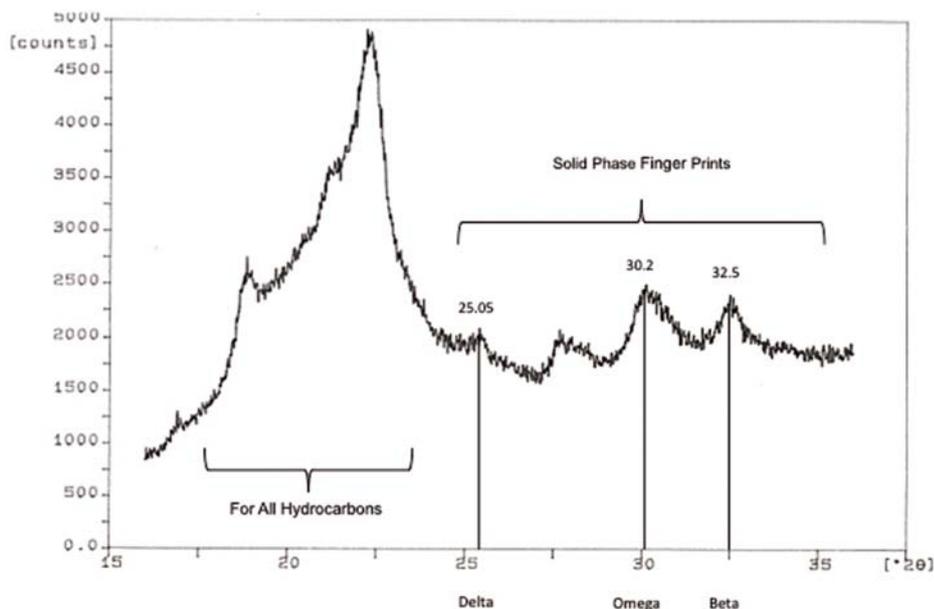


Figure 2

Though the crystal size of beta phase is the smallest, it is sufficient enough to fully scatter the light and make the soap opaque. There is some misunderstanding with some of the scientists who believe that it is beta phase which is responsible for transparency. Ideally the best transparent soap should be fully amorphous with no peak prominent in X-ray value of 25 to 35. If it is beta phase which is responsible for transparency then any transparent soap which is clear and manufactured by melt cast route should have strong beta phase peak of d-spacing of 2.75 Å. In fact there is no beta phase peak in good transparent soaps manufactured by melt and pour method. The X-ray diffraction pattern is value gives information for solid soap phases [12]. One can easily verify this by subjecting different transparent soaps to low angle x-ray diffraction. It is very easy to carefully monitor the lowering of the intensity of omega phase in transparent soaps during the processing of conventional extruded soap at different stage of processing. During the processing under controlled temperature and moisture with particular formulation there is no significant increase in beta phase intensity at d-spacing of 2.75 Å. Normally the increase of beta phase does not match with the decrease of omega phase because part of omega phase is converted to liquid phase during the processing. Depending upon

the formulation and process using the extrusion route the particle size can be reduced by converting the normal soap phases to amorphous phase. Due to limitation of particle size reduction in mechanical shear, it is not easy to convert all the solid phases to amorphous phase. Some quantity of beta phase is always present in the soap which leads to a translucent product with scattering of some of the light. In some cases where transparency is not very good, one can find some diffused peaks in beta phase region. This is due to poor dissolution of stearate/ palmitate soaps in liquid matrix.

For a very clear transparent soap the intensity of incident light is almost equivalent to intensity of transmitted light. In mechanical processing, the incident light intensity gets divided to intensity of transmitted light and a part of this light is absorbed, reflected or scattered.

For very clear transparent soap:

$$I_i = I_t$$

For translucent Soap:

$$I_i = I_t + I_a + I_r + I_s$$

If $I_a + I_r + I_s = 0$

Then $I_i = I_t$

Where,

I_i is the incident light

I_t is the transmitted light

I_a is the light absorbed

I_r is the light reflected

I_s is the light scattered

Under this condition the soap will become very transparent.

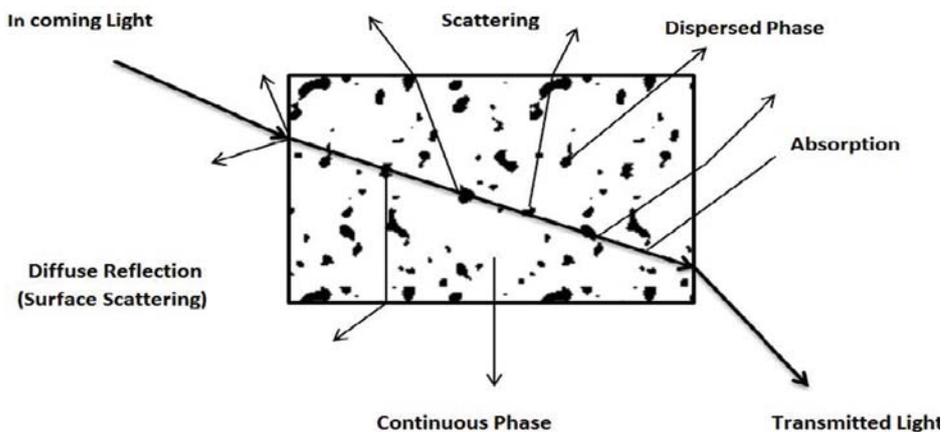


Figure 3: Scattering, absorption and transmission of the incident light.

With the development of new technologies, the equipment manufacturers have developed high shear equipment's where particle size is reduced in such a way that I_a , I_s and I_r is almost zero. Even with mechanical shear these soaps look very transparent [13].

b) Refractive indices of the different phases present in the System:

The refractive indices of a system can be defined mathematically as follows:

$$\frac{\sin i}{\sin r} = n$$

Where
 i = Angle of incidence
 r = Angle of refraction
 n = Refractive indices

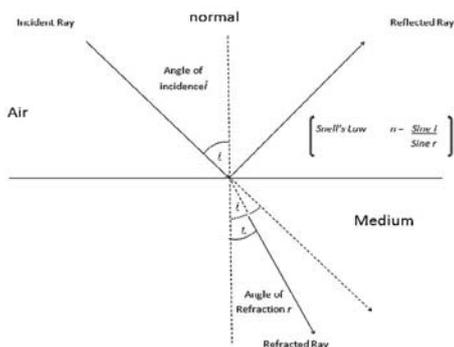


Figure 4

Soap Phases

It is sure that we cannot get clear transparent soap if there is presence of known solid phases such as omega, delta and beta. Liquid phases of soaps and surfactants are well known from the days of Roseware and Luzatti during the period of 1940-1950 [14-15]. The main liquid phases present in soaps and surfactants are as follows:

Isotropic solution: Isotropic solution is mainly micellar solution with no birefringence under cross polarized light. There can be spherical micellar solution or rod micellar solution. The spherical micellar size is normally less than the double of the molecular length of soap

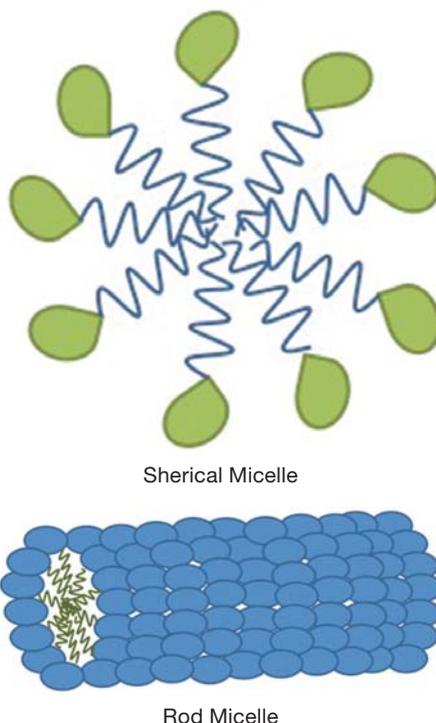


Figure 5

or surfactants which can vary from 40-100 Å depending upon the chain length of the molecule. A typical size of micelle formed in certain surfactant system is reported to be ~ 50 Å [16]. Rod micellar solution has rods of molecular arrangements with diameter of less than the double of the molecular length of soap or surfactant with infinite length.

Lamellar Liquid Crystalline Phase: Lamellar liquid crystalline phase is layered structure of soap or surfactants. Between

the two head groups in the layer, there is aqueous layer and the combined bilayer thickness is the combination of aqueous layer and the two hydrocarbon layers (figure 6) [17-20]. This phase is observed at high level of soaps or surfactants in the range of 65-80% above the Kraft point of the surfactant. Kraft point can be defined as the temperature above which the solubility of soaps or surfactants increases fast and at this temperature the concentration of surfactant is equal to critical micelle concentration (CMC). This phase is anisotropic. It is characterized by its typical birefringence under cross polarized light.

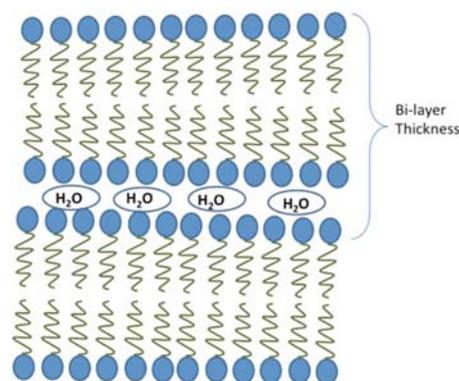


Figure 6:

Hexagonal Liquid Crystalline Phase: This is the phase which is normally observed at moisture level of 45-60% and is very viscous. In this phase rod micelles are arranged in hexagonal pattern. It is anisotropic and is more transparent than lamellar liquid crystalline phase [17]. It is characterized by its characteristic birefringence under cross polarized light. The molecular arrangement in hexagonal phase is as follows:

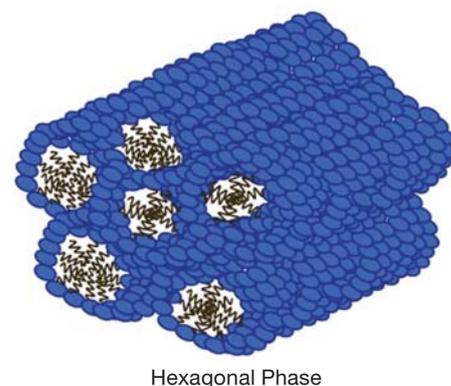


Figure 7

Cubic Phase: In cubic phase normally the spherical micelles are arranged in cubic,

face centered cubic or body centered cubic forms and have very high viscosity. Due to very high viscosity sometimes it looks like transparent solid. This phase is isotropic under cross polarized light. [18-20]

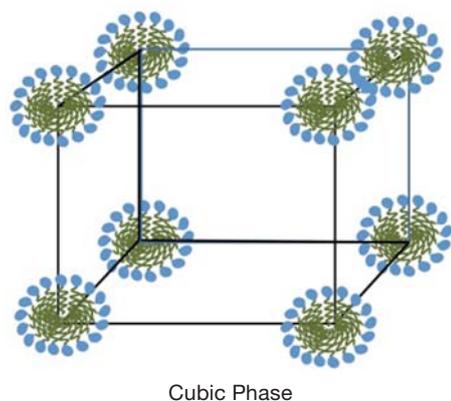


Figure 8

Gel Phase: Sometimes gel phase is also formed in certain surfactants but is not common in normal soaps [19].

Inverted Hexagonal Phase: Inverted hexagonal phase is observed in systems with oil as continuous phase and is not observed in normal soaps. It is formed in hydrophobic medium as continuous phase where hydrocarbon chain comes out in the continuous medium and hydrophilic head group forms core of the rod [20].

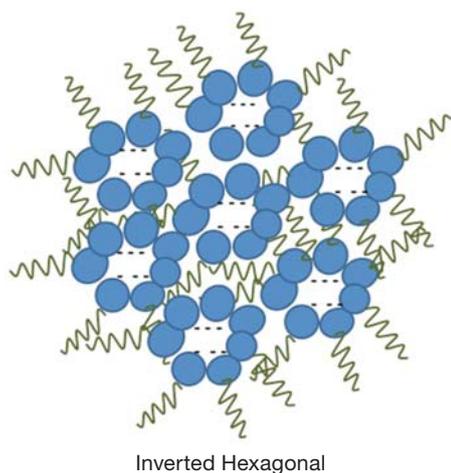


Figure 9

Inverted Cubic Phase: Inverted cubic phase is also observed in systems with oil as continuous phase and is not observed in normal soaps.

The purpose of giving brief description of the liquid crystalline phases of soaps is to understand the effect of these phases

on transparency. All the phases which are anisotropic in nature give rise to translucency/ opacity if present in the soap systems because they have different refractive indices in different direction.

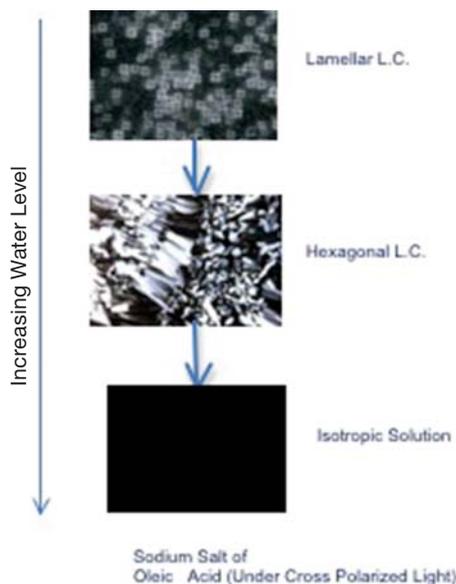


Figure 10

Besides the above mentioned phases there are other phases reported in literature but in normal soaps we encounter mainly isotropic solution, lamellar L.C. and Hexagonal L.C. phases. Lamellar and Hexagonal phases are anisotropic in nature and give birefringence under cross polarized light while isotropic solution does not give birefringence (Figure 10). Their rheological properties are also different (Figure 11). Reverse phases and cubic phases are not present in normal soaps. Because of good transparency and stiffness it may be possible to formulate transparent soaps with cubic phase. If a system has a number of phases of different refractive indices, then the value of $\sin r$ will vary and will keep on changing. This will lead to light scattering or diffraction of light within the system and it will not be

transparent. If the refractive indices of the different phases present in the system is same, the value of $\sin i$ being fixed, $\sin r$ will also be fixed and the light within the system will travel without any deviation from the path. This will lead to transparency in the system.

Transparency in soap systems:

The different phases observed in soap such as isotropic solution, lamellar L.C phase, hexagonal L.C phase and solid phases have different refractive indices. The anisotropic behavior of some of the phases further helps in diffraction of light within the system. The refractive indices of soap is in the range of 1.45-1.48 and the refractive indices of water is around 1.33. To minimize the difference in the refractive indices of soap and liquid (water) it is important to increase the refractive indices of liquid phase (water). There are following different ways to increase the refractive indices of liquid phase:

Use of high refractive indices materials:

Refractive indices is an additive property. High refractive indices water soluble materials such as glycerin, propylene glycol, sorbitol, sucrose, TEA etc., increase the RI of water and minimize the difference in the RI of solid and liquid phase of soap [21].

Dissolution of soap in liquid phase:

The refractive indices of liquid phase can be increased by dissolving soap which has high refractive indices. This can be done either by mechanical shear or by molecular dissolution of soap. The mechanical shear can minimize the particle size and also help in dissolution of soluble soap in the liquid phase. Soaps

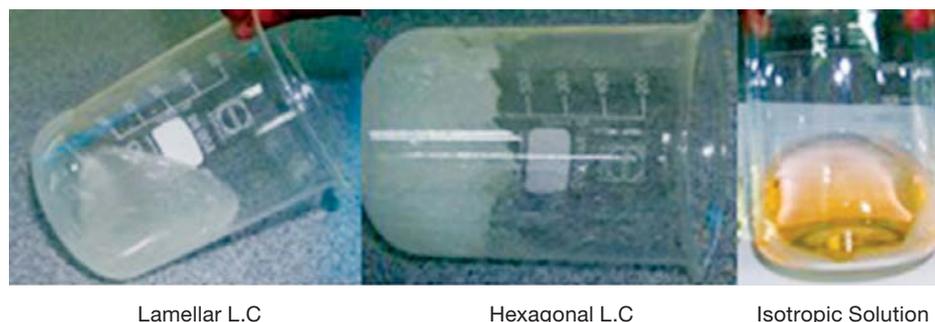


Figure 11

of rosin and ricinoleic acid have high solubility in water and once added in the fat blend, improve the transparency/translucency of the product.

Use of Ethanol:

Historically ethanol has been used for getting isotropic solution of the blend of transparent soap. Its presence at desired level helps in maintaining the system during the whole cycle of cooling in isotropic form. If the formulation requires high level of alcohol then the product needs to be cured to evaporate the alcohol. During this curing period, due to evaporation of low refractive indices alcohol (1.36), the transparency of the soap improves. The solid soap manufactured by melt and pour method with high level of alcohol (15-30%), goes through curing at different temperatures for several weeks. To avoid the long curing period the soap manufacturers avoid using high level of alcohol and create isotropic solution by using polyols. In the past one of the famous brands Neutrogena was manufactured by using high level of triethanol ammine as solubilizer in the soap for making it isotropic.

With proper composition of soap with high level of solubilizers /polyols on heating above the Kraft point of the soap, gives an isotropic solution. It means there is no presence of any birefringence at high temperature (65-70°C). On cooling it can give transparent solid soap only if during the cooling process up to room temperature there is no formation of birefringence at any stage. If there is presence of birefringence at any stage of cooling it means there is formation of either anisotropic liquid crystalline phase or solid phase which in turn will lead to opacity. The change of the cations also helps in controlling the dissolution of soap. Normally potassium and TEA soaps have higher solubility in comparison to sodium. Polyols help in the increase of the refractive indices of liquid phase but at the same time, they help in stopping the crystal growth of soap and keep the size less than the wavelength of light.

Different Method of Making Transparent Soaps:

Processing of Transparent Soaps:

There are mainly two processes of manufacturing transparent soaps:

Conventional Extrusion Process:

Good quality translucent soaps are produced by using 6-10% of humectants such as glycerine and propylene glycol in normal soap noodles with 17-18% moisture under high shear of mixing, milling and plodding at the temperature in the range of 48-50°C. A general formulation which can give good translucent product is as follows:

Soap Noodle 85/15 with 18-19% moisture	88-90%
Humectants (Glycerin/ Propylene Glycol/ Sorbitol)	6-10%
Perfume	1-1.5%

Melt and Pour Method:

Very good transparent soaps are manufactured by melt and pour method. In this case the proper ratio of lower chain saturated fatty acids, saturated long chain fatty acids and unsaturated fatty acids are melted with polyols (glycerin, propylene glycol, sugar, sorbitol etc.) using about 18-20% water. This melt is neutralized with sodium hydroxide or a mixture of sodium hydroxide, potassium hydroxide and triethanol amine at 60-70°C. The melt has to be a clear solution at this temperature. Sometimes there is a need to add some amount of ethanol to a get clear solution. This solution is poured in molds and cooled to room temperature to get clear transparent soap. A general formulation for such transparent soaps is as follows:

Fatty Acid	35-40%
Potassium Hydroxide/ Sodium Hydroxide/ Triethanol Ammine	5.0-6.0%
Polyols (sugar/ Sorbitol/ propylene glycol/ glycerin etc.)	15-25%
Ethanol	5.00-10%
Water	15-20%
Perfume	1.0-1.5%

It is necessary to understand the basic phenomenon occurring during the transparent soap processing. There is a lot of scope of work on the basic and applied research in this field. Because of the unique molecular structures, soaps and surfactants behave differently in the formation of aggregates when they come in contact with water and other solvents. The basic theory of transparency is to make sure that these aggregates do not lead to nucleation and growth of crystals or formation of liquid crystalline phase.

Transparency in other Cosmetic Products:

Besides transparent soaps there are other transparent personal care products. The theory of formulating all these products is same as what has been discussed for transparent soaps. Some of the well-known products which are very common in the world market are as follows:

- Deodorant Sticks
- Transparent Shaving Soaps/ Gels
- Transparent Hair Gel

Minimization of refractive indices of different phases present in the system and reduction of particle size below the wavelength of light are the main parameters helping in the transparency of these products.

Conclusion:

In short because of the aesthetic and the perception of purity and mildness transparent soaps are well accepted by the consumers. These soaps are manufactured by conventional extrusion process or by melt and pour methods. Irrespective of the processing and manufacturing methods, the theory of transparency in soap remains same. The transparency is achieved by minimizing the refractive indices difference between the solid and liquid phases and by minimizing the particle size to less than the wavelength of light. The best transparent soap is produced by keeping the isotropic nature of the product at every stage of processing during cooling from melt at elevated temperature to

room temperature in melt and pour process. In extrusion process with proper formulation under high shear of working with controlled temperature and moisture, the solid phases are converted to liquid like structure or with small level of beta phase to give transparency to the system. In this way there is a lot of physical chemistry behind the formulation and the process of transparent soaps.

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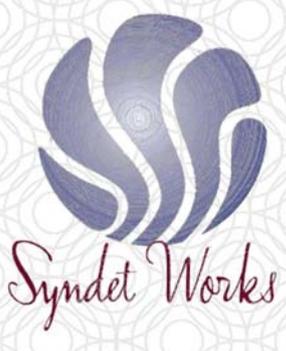
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New natural emollients deliver silicone-like sensation

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Introduction

Cosmetic products, especially emulsions, contain a large variety of oils (ester, alkane, silicone, and vegetable oils). The right combination of the oils permits to assure the stability with a good sensorial effect of the emulsion. The most visible criteria for a good sensory experience is the spreading quality of the emulsion. The classical way to improve spreading of an emulsion is to add silicone oils (i.e. Dimethicone or Cyclopentasiloxane and Cyclohexasiloxane) but these silicone oils don't fit well with nowadays environment concerns. Our target is to investigate if recently designed bio-sourced and readily biodegradable alkanes can improve the spreadability of the emulsion in a similar way to silicone oils. Renewable alkanes launched by SEPPIC also benefit of stable formulation in extreme condition e.g. high or low pH, or the presence of stressful ingredients, and, contrary to silicone oils, are compatible with any kind of oil and versatile to use.

Materials and methods

- Raw materials and formulas

To study the influence of biodegradable alkanes on the emulsions spreading characteristics, evaluations

Oil	INCI name	Chemical structure (main component)	Biodegradability (OECD 306 in sea water)	Origin
Alkane 1	C15-19 Alkane	C15-16 Alkane	80%	Renewable palm oil
Alkane 2	C15-19 Alkane	C17-18 Alkane	83%	Renewable palm oil
Silicone 1	Dimethicone	-	No	Mineral
Silicone 2	Cyclopentasiloxane and Cyclohexasiloxane	-	No	Mineral

Table 1: Pure oils

O/W emulsions			Cream gels		
Function	INCI name	Dose (%)	Function	INCI name	Dose (%)
Emulsifier	C14-22 Alkylalcohols and C12-20 Alkyl Glucoside	3.00	Polymer	Hydroxyethylacrylate and Sodium Acryloyldimethyl Taurate Copolymer	2.00
Oil	Caprylic/Capric Triglyceride	5.00	Oil	C15-19 Alkane or Cyclopentasiloxane and Cyclohexasiloxane	15.00
	C15-19 Alkane or Dimethicone or Cyclopentasiloxane and Cyclohexasiloxane	10.00	Water	Demineralized water	82.70
Wax	Cera Alba	3.00	Additive	Caprylyl/ Capric Glucoside	0.30
	Ozokerite	2.00			
Polymer	Polyacrylate Crosspolymer-6	1.20			
Water	Demineralized water	74.60			
Additive	Disodium EDTA	0.20			
Preservative	Phenoxyethanol	1.00			

Table 2: Formula compositions

were first done on pure oils (table 1) then on simple formulas (O/W emulsions or cream gels, table 2).

O/W emulsions manufacturing procedure: at 80°C, addition of the water phase on the oily phase (containing polymer), followed by

rotor/ stator homogenization during 4mn at 4000rpm, then cooling under anchor mixing 20mn at 200rpm. Cream gel manufacturing procedure: at cold, addition of the water phase on the oily phase (containing polymer) under serrated disc mixing during 10mn at

1000rpm until the achievement of an homogeneous gel.

- Methods

The pure oils (produced by Total Fluid patented technology) and formulas spreading profiles were compared using three kinds of complementary physical measurements, supported by a final in vivo sensory validation step. In order to conclude in real use conditions and to avoid possible interactions, the compared sensory assessment was done on a cream-gel base (oils are stabilized only by a polymer selected for its neutral sensory profile).

* Contact angle measurement: this test determines the contact angle formed by a droplet of the oil on a PMMA plate surface [1]. The rough PMMA plate (Sunplates, 4.5–5.5µm roughness, Helioscience) is used to mimic the skin as internal pre-screening tests demonstrated with this material a similar spontaneous oil spreading ranking than the ranking obtained on human skin. The oil was drop off and manually defined with a fixed base, using a Digidrop Fast/30 GBX goniometer. The contact angle was monitored during 5 seconds, the value at 0.8s allows to compare the oils without any influence of the volatility (average of 3 measures). Higher is the contact angle, lower is the wetting power of the oil.

* Friction coefficient measurement: the friction coefficient was measured on the pure oils with a new tribology accessory (Ring on plate geometry) fixed on a hybrid rheometer (DHR2, TA Instrument) [2]. A 90µm layer of oil was applied on an aluminum plate, the measures were realized using a load force of 2N and a velocity gradient between 0.01 and 15 rad/s. TRIOS software calculates the friction coefficient (=maximum of the friction force/ normal force) at the different velocity gradients. The value of the friction coefficient at 10 rad/s allows to compare the oils (average of 3 measures). The 10 rad/s velocity has been chosen according previous studies, as the closest condition to a real spreading protocol. Lower is the friction coefficient, more gliding is the oil.

* Friction force measurement: the friction force of a O/W emulsion was assessed, using a friction module A/FR fixed on a texture analyzer (TA XT-PLUS, Stable Micro System). 200µl of the emulsion was spread between a polypropylene plate and a PMMA plate (Helioplate™ HD6, 6µm roughness, HelioScreen), while the sled was pulled up to 140 mm at a speed of 2 mm/s. The friction force maximum value was used to compare the oils (average of 3 measures). Lower is the friction force, more gliding is the emulsion [3].

* Sensorial evaluation: this evaluation was performed by 13 trained panelists, on cream gels. A pivot [4] cream gel was fixed; the panelists applied 50µl of a cream gel and described it versus the

pivot cream gel. After a statistic analysis, the main differences between the cream gels were identified. Then, the sensorial properties of the different oils were assessed.

Results and discussion

Spreading of cosmetics can be decomposed into different steps: firstly, ability of the formulations to wet the skin and secondly, the ease by which they glide on the skin under hand pressure [5]. Wetting and gliding powers of the oils were initially measured on the pure oils.

Measurements on pure oils

Silicone 1 provided a higher contact angle than the others oils, which means that its spontaneous spreadability on skin is expected to be significantly lower.

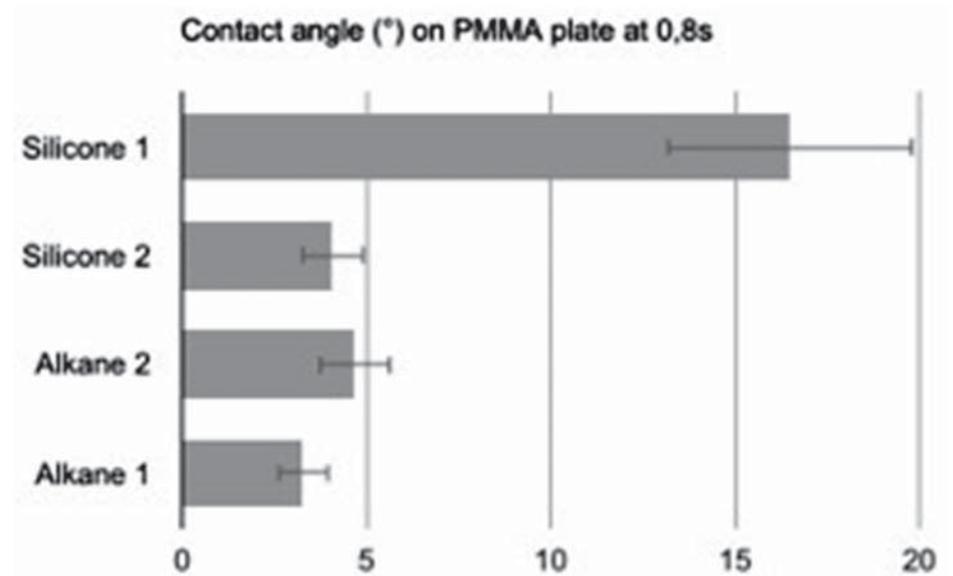


Table 3: contact angle

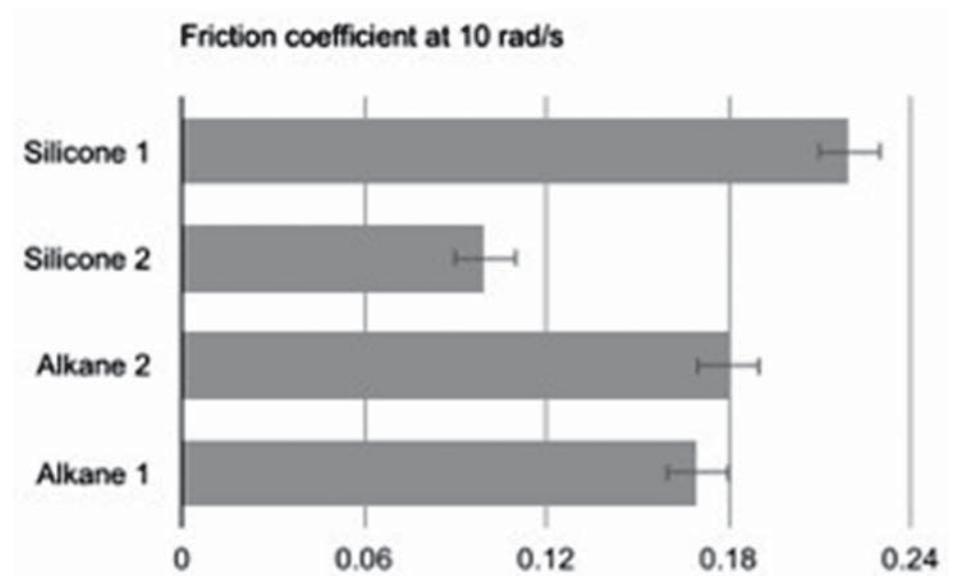


Table 4: Friction coefficient

Alkane 1 and 2 formed a similar contact angle than Silicone 2 (table 3) linked to a high wetting capacity and a fast spontaneous spreading.

The friction coefficient of Alkane 1 and 2 was similar, with an intermediate value between Silicone 1 and Silicone 2 (table 4). The friction coefficient represents the resistance of the oil to glide when submitted to a rotating movement under pressure.

The great difference observed between Silicone 1 and 2 for the two parameters is consistent with previous publications and reflect different sensory perception [6].

Measurements on pure oils showed that the wetting character of Alkane 1 and Alkane 2 was similar to Silicone 2 whereas their gliding effect was in between the two Silicones. The behavior of oils was then checked in water continuous formulations.

Measurements on formulations

Gliding power was confirmed on an emulsion to check eventual polymer or emulsifier influence. Instrumental measurement of friction force showed that there was no significant difference between the tested oils in this condition (table 5). However, two parameters could also impact these results: firstly some potential effect of the polymethacrylate plates (versus real skin) and secondly a possible impact of the emulsifying system linked to their action on surface tension.

In order to conclude in real use

conditions and to avoid possible interactions of the emulsifying system, the compared sensory assessment was done on a cream-gel base (oils are stabilized only by a polymer selected for its neutral sensory profile). As contact angle measurements proved that Alkane 1 and Alkane 2 were similar to Silicone 2, only these oils were tested.

Panelist evaluation of the cream gels made with the different oils determined that:

- Cream gel made with Alkane 1 was similar to cream gel made with Silicone 2
 - Cream gel made with Alkane 2 was different than the others cream gels. This formula was perceived as less dry and greasier than the formulas made with Alkane 1 and Silicone 2.
- Conclusion Instrumental tests on pure oils and on classical O/W emulsions show that Alkane 1 and Alkane 2 were relevant candidates to replace Silicone 2 (volatile grade) in order to improve O/W emulsion spreadability:
- Contact angle of Alkane 1 and Alkane 2 on a PMMA plate were similar than Silicone 2.
 - Alkane 1 and Alkane 2 friction coefficients were intermediate between Silicone 1 and Silicone 2.
 - Friction forces of Alkane 1 and Alkane 2 in emulsion were similar to Silicone 1 and Silicone 2. Sensorial evaluation

by trained panelists determined some difference between Alkane 1 and Alkane 2 when tested in cream gel:

- Alkane 1 provided evanescent sensation, like Silicone 2.
- Alkane 2 imparted a more comfortable skin feel. Alkane 1 and Alkane 2, are promising natural alternatives to silicone, to improve spreadability of O/W emulsions. Moreover, beyond the application performance, Alkane 1 and Alkane 2 are environment-friendly solutions, readily biodegradable and produced from traceable renewable plant resource, in line with the consumer demand. 8/9

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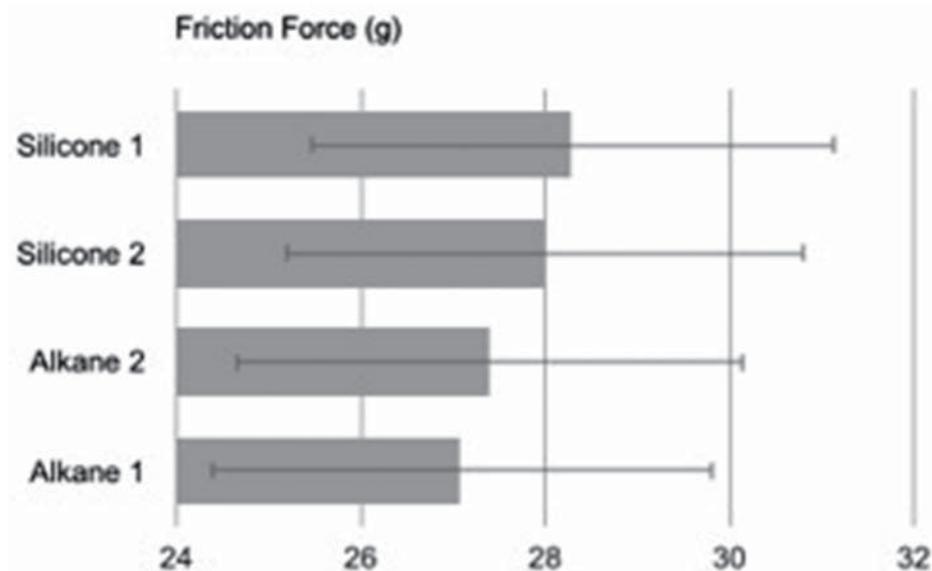


Table 5: Friction force of emulsions

Exporting Organic Cosmetics – avoid the mistakes

by **John McLean**

Organic Ready Consulting Services

Globally organic cosmetics are a booming segment within the expanding cosmetic market. Australia also has a booming organic cosmetics market but, in global terms, Australia is still a relatively small market making up less than 2% of the world market. Accessing the remaining 98% of the global market can be lucrative for Australian organic companies but how can you ensure your products will not be turned away because they do not meet local requirements? Many countries have their own regulations for organic products that must be met when exporting to them. Without ensuring your products are compliant with local regulations you can make expensive mistakes. This presentation covers everything you need to know for exporting organic cosmetics to China, South Korea, Malaysia, Thailand, Indonesia, USA, Europe and UK.

Analysts have forecast global cosmetic sales to increase from just over \$400 billion in 2014 to over \$650 billion in 2020 – an increase of about 46%. When we look specifically at organic cosmetics we see that the expected growth rate from 2014 to 2020 is forecast to be 50% higher than non-organic cosmetics.

Market reports show that total

cosmetic sales in Australia in 2015 were approximately \$2.9 billion compared with about \$500 billion spent globally. This illustrates the growth potential for cosmetic manufacturers who are able to tap into this market and when we consider the even faster rate of growth expected in the organic cosmetics market. It is all very well having booming demand for organic cosmetics overseas but if we can't negotiate the regulatory obstacles we can miss opportunities and make expensive mistakes.

Certified organic cosmetics are made from ingredients that are non-GMO, non-petrochemical, non-irradiated and generally are derived from organic agriculture. Obviously that is a very brief summary of what certified organic means but these basics are common across all organic standards. Within Australia there are a number of organic certifications available including COSMOS and NSF ANSI. However, when exporting organic cosmetics from Australia only products certified to the Australian National Standard for Organic and Biodynamic Produce are regulated when leaving Australia.

It is prohibited to export organic produce unless an Organic Produce

Certificate (OPC) or Transaction Certificate (TC) has been issued under the Export Control Act 1982 and the Export Control Orders 1997. These documents are a requirement of the Australian Government and require authorisation from Certification Bodies such as Australian Certified Organic, NASAA, AusQual and OFC. For organic cosmetic exports over 10Kg or 10L, a TC is required (Australian National Standard for Organic and Biodynamic Produce only), irrespective of whether the importing country requires the document or not.

Australian exporters, however, must also consider the regulation requirements of the importing country. For some countries there is little or no regulation while others will not allow entry of any products that are not certified to their own national standard. When these stricter countries have organic standards that do not include cosmetics within their scope then it becomes virtually impossible to export cosmetics to these countries if they are making any organic claims.

The USA is one of the countries that does regulate the word organic and states in regulation no. 205.100(c)(1) "Any operation that knowingly sells or labels a

product as organic, except in accordance with the Act shall be subject to a civil penalty”. This appears to indicate that cosmetics cannot be exported into the US unless they are certified to the US National Organic Program (NOP) which is Part 205 of the Code of Federal Regulations. That is unless you read the 2008 NOP fact sheet that states that “FDA does not define or regulate the term ‘organic’ as it applies to cosmetics, body care, or personal care products”. So in reality there is no regulation of organic claims on cosmetics going into the US. Just to make it that little bit more interesting, a cosmetic may still be certified to the NOP provided it meets all the requirements and if it is certified the USDA organic seal may be applied.

In Europe the situation is similar to the US in some ways. The EU Organic Regulations only cover agriculture and food products and so organic claims on cosmetics are completely unregulated. It was for this reason that the private COSMOS and Natrue cosmetic standards were created in Europe to provide a level of assurance for cosmetic customers who wanted to know the products they were using were made with organic ingredients and with consideration for the environment. Products certified to any organic standard can be exported to Europe as long as they are not claiming that they are certified to the EU organic standard which is Council Regulation (EC) No 834/2007.

Now onto one of the largest and fastest growing cosmetic markets – China. China regulates the word organic very tightly and currently no international organic equivalency agreements are in place which means that unless a product is certified to the Chinese organic standard it can not make any organic claims. Even though the Chinese organic standard does not include cosmetics the regulation of the word “organic” is so tight that it can not be used even on products not included within the scope of the standard. Finally the Chinese government still requires that newly imported cosmetics are tested

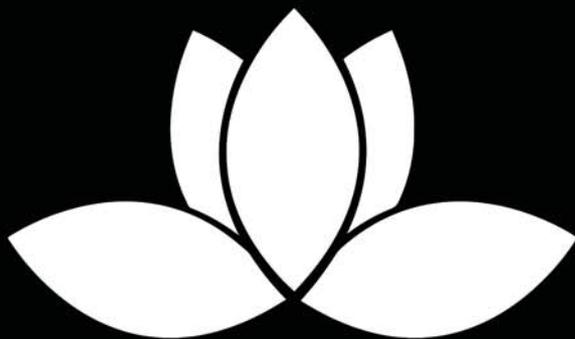
on animals, which is prohibited in all organic cosmetic standards. So essentially China is a no go zone for organic cosmetics.

Taiwan, Japan, Korea and Indonesia, like Europe, do not regulate organic claims on cosmetics. They all have national organic standards but these standards do not include cosmetics and only apply to food products and agriculture. This means that cosmetics with any organic certification can be exported from Australia into these countries.

Malaysia has a national organic standard but it is not regulated and Thailand, Singapore, Philippines, Vietnam and Indonesia have no national organic standard. Therefore all of these countries have no restrictions on importing organic cosmetics from Australia.

These regulations are not difficult to understand and once you know them you can avoid the risk of having shipments returned or held up by the importing country’s customs authority. Remember them and they can save you making costly mistakes.

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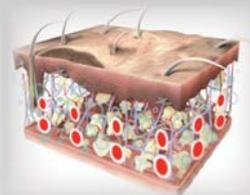
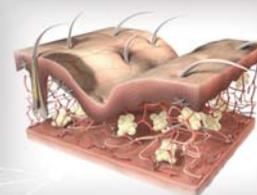
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