

# Society of Cosmetic Chemists

Carolina Chapter



Society of Cosmetic Chemists  
Carolina Chapter

September 2017  
Volume 112

## SEPTEMBER 21, 2017



### Twisted Spur

BREWING

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To register, please visit [www.carolinascc.org](http://www.carolinascc.org)

Registration:	4:30-5:00
Presentation:	5:00-6:15
Tour:	6:15-6:45
Dinner:	6:45

### MEETING TOPICS:

#### Fermentation: Traditional Art, Modern Science

While fermentation can be argued to be one of man's oldest technologies; the chemical breakdown of substances by microbes continues to drive cosmetic trends. Starting with the adoption of faex, yogurt, acidophilus, LYCD and advancing to today's fascination with biofermented plant materials; the cosmetic and pharmaceutical industries embrace of fermentation technology continues to grow. This presentation provides an overview of the fermentation process and innovative use of fermentation in cosmetics to enhance bioavailability

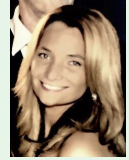
#### The Beer Making Process:

As far as quality is concerned, we strive to be the best in every aspect of our restaurant and brewery. In the brewery, it starts with the water. We filter our water five times including reverse osmosis filtration and UV sterilization to bring you a product made with the purest water. Our malt and hops are the finest American and German products available. For food we use Myers Beef, which is the highest quality standard available for steak. We also feature dry aged pork chops from Duroc Farms. We have a fresh seafood program featuring never frozen local fish and oysters available from across North America. All of our sauces and dressings are made in house and many include our house made beers in the recipes. Our goal at Twisted Spur is to provide the finest craft beer paired with a unique culinary experience that is impeccable in every aspect. Cheers!

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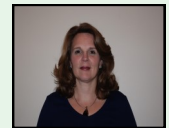
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## UPCOMING MEETING DATES

September 21, 2017: Columbia SC

November 16, 2017: TOPGOLF

Charlotte NC

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MEETING, CONTACT US!**

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## LETTER FROM THE CHAIR: SHARI CLEMENTE

Dear Members,

I hope everyone had a wonderful summer! We had a wonderful summer kick off meeting hosted by Burt's Bee's on April 20<sup>th</sup> accompanied by great topics. A special thanks to Kevin Reiner for rallying thru a cold to give his speak to his portion of the talk with Ester Tristani on Self-Regulation and Ethical Marketing. Hemali Gunt also had a great presentation on Pollution and Skin Integrity. Also, a special thanks to Cheryl Hill for helping to sponsor the event at their facility. The meeting was followed by a meal at the Tobacco Road Sports Café. Thank you to all members for attending this meeting is was a great success.

We have an exciting meeting on Thursday September 21<sup>st</sup> planned in Columbia South Carolina. Please join us at the Twisted Spur Brewery for topics on Fermentation: Traditional Art, Modern Science as well as a tour of the brewery and presentation on the beer making process at the Twisted Spur. Our meeting will be followed by dinner at the Twisted Spur. We look forward to seeing everyone at this event.

All the best,

Shari Clemente

If you are interested in presenting at a 2017 Carolina Chapter meeting please send an email to [scccarolinas@gmail.com](mailto:scccarolinas@gmail.com)

The Carolina Chapter is also looking for people interested in submitting articles to be distributed in our newsletter. Please submit a short summary of your article if you would like to be published in our newsletter!

Contact us for more information about sponsoring an upcoming meeting.

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# Society of Cosmetic Chemists

Carolina Chapter



## MEET OUR SPEAKER: CHRIS BALDWIN



My name is Chris Baldwin and I am the owner and head brewer at Twisted Spur. I am originally from Columbia, but had an opportunity to live and travel around the West Coast after graduating from The University of South Carolina. I discovered an incredible culture centered around the beautiful art of making craft beer and pairing that beer with amazing cuisine to create an experience that is unique to that place. At Twisted Spur Brewing, we

are bringing this idea and culture to South Carolina.

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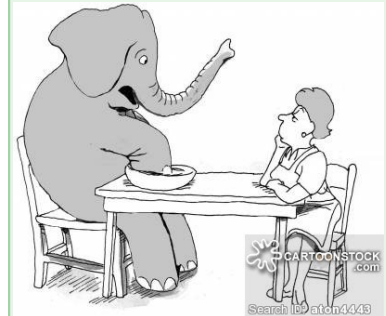


## MEET OUR SPEAKERS: CONTINUED



Tia Alkazaz is currently the Marketing Manager at Active Micro Technologies. Fueled by her interest in cosmetic microbiology, Tia focuses on the study of innovative peptide technology and other alternative antimicrobial materials that are effective, safe, and stable to both chemists and consumers. She received a Bachelor of Science degree in Biochemistry from the University of Mount Union (Alliance, Ohio) and a Master of Science degree in Pharmaceutical Science with a Concentration in Cosmetic Science from the University of Cincinnati (Cincinnati, Ohio)

## Enjoy a Laugh!



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## SCC NEWS:

Upcoming CEP Courses will be offered at the National Office. Read below for more information!

### CEP Course: Cosmetic Chemists Guide to Product Development NEXGEN

September 20, 2017 (9:00 am – 5:00 pm) at the SCC National Office: 120 Wall Street Suite 2400, New York, NY 10005



Instructed by Perry Romanowski—

*This course will cover the basic process of generating ideas for new cosmetics, developing them into functional products and scaling them up to be sold commercially. This class would be useful for cosmetic formulators, quality control scientists, regulatory scientists, marketing and product development professionals and others who are interested in the process of taking an idea from a brainstorm session to a store shelf.*

### 71<sup>ST</sup> ANNUAL | SCIENTIFIC MEETING & TECHNOLOGY SHOWCASE



On December 11-12, 2017, the Society will host the BIGGEST and MOST INFLUENTIAL cosmetic science education event of the year, but not without the generous contributions and support of the Cosmetics & Personal Care community. Scheduled in a new location, for the first time in decades, at The Westin New York at Times Square, our 5,000 members plus hundreds of other industry practitioners will look to this event for the latest developments of Cosmetic Science.

Visit [www.sconline.org](http://www.sconline.org) for more information

### CEP Course: Cosmetics Formulations: October 24, 2017 (9:00 am – 5:00 pm PACIFIC TIME) at the Long Beach Convention Center during California Suppliers' Day

Instructed by Mark Chandler, President – ACT Solutions Corp

As one of the most popular National CEP courses, this course is perfect for anyone interested in the mechanics of designing a cosmetic formulation. Attendees will obtain a better understanding of Emulsion Theory, the Basics of Sunscreen, Preservation, Cleanser Formulation and more! Beneficial to beginning and seasoned scientists, this course will increase attendees' confidence on technical information related to Cosmetic Science and will prove very useful on the exhibition floor during Suppliers' Day

### CEP Course: Beginning Cosmetic Chemistry: October 24, 2017 (9:00 am-5:00 pm PACIFIC TIME) at the Long Beach Convention Center during California Suppliers' Day



Instructed by Perry Romanowski – Vice President of Brains Publishing

Another popular National CEP course, Beginning Cosmetic Chemistry is designed specifically with beginning cosmetic chemists in mind, but information presented will also be useful for QA chemists and seasoned veteran scientists who want to learn about other areas of formulations. By attending this course, attendees will receive an introduction to the industry, basic physiology of skin and hair, obtain formulation techniques, learn a few tools of the trade and be able to conduct Claims substantiation testing, among many other education tools. Beneficial to beginning and seasoned scientists, this course will increase attendees' confidence on technical information related to Cosmetic Science and will prove very useful on the exhibition floor during Suppliers' Day



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### THE BAD, THE BANNED, AND THE MALIGNED: FORMULATING WITH YOUR HANDS

BY: PERRY ROMANOWSKI

It's getting harder to be a cosmetic formulator these days. It used to be you could mix together any reasonable ingredients to get the performance you wanted and everyone was fine with it. Formulators didn't even have to list the ingredients on the products!

But times have changed. Now, you need to not only achieve product performance, but you have to do it with ingredients that are acceptable to your marketers, government regulators, and discerning consumers. That means a lot of standard, reliable ingredients have to be avoided. We'll examine which ones in the rest of this post.

#### BANNED BY REGULATORS

Before continuing, it should be noted that there are some ingredients banned for use in cosmetics. FDA bans these 10 ingredients (or classes of ingredients) while the EU lists over 1300. This is a misleading comparison because the EU regulations list ingredients that no formulator would use in the formulation. For example, Arsenic & Cyanide are banned by the EU but not by FDA.

Of course, just because an ingredient isn't banned by FDA doesn't mean you can use it. The over-reaching rule in both regulatory frameworks is that it is illegal to produce unsafe cosmetic products.

#### VILIFIED INGREDIENTS

While regulatory agencies ban ingredients for proven health concerns, there are a number of sources that call for ingredient bans without supporting science. These include NGO advocacy groups, natural marketers, biased retail outlets and misinformed bloggers. And despite the fact that an ingredient is perfectly safe to use, your company may ask you to avoid it due to its reputation. Here are some ingredients you may have to avoid in your formulating.

#### PRESERVATIVES

Pretty much all formulas need preservatives, but lots of cosmetic marketers want to use the phrase "preservative free." This puts formulators in a bind. Also, since preservatives are meant to kill cells, it's not surprising high levels can have negative side effects. Some of the most effective and reliable preservatives – including Parabens, Formaldehyde donors, and Methylisothiazolinones – have developed such poor reputations that many formulators just avoid them. Even an ingredient like Phenoxethanol is viewed negatively among some consumer groups.

There are some alternatives. For example, some formulators have had success using organic acids and their salts: Benzoic Acid, Sorbic Acid, Potassium Sorbate or Sodium Benzoate. Benzyl Alcohol and Iodopropynyl Butylcarbamate are other options. These aren't nearly as easy or effective to work with, but they can work in some systems.

#### SURFACTANTS

Surfactants are the most widely used functional ingredients in cosmetics but some of them have developed poor reputations. Unfortunately, this includes some of the most effective and versatile ingredients. Some consumers would prefer to avoid Sulfates like Sodium Lauryl Sulfate and Sodium Laureth Sulfate. Also, you may want to stay away from diethanolamines like Lauramide DEA or Cocamide DEA.

Finding surfactants that don't include the word "sulfate" or have an "-eth" in its name is one option for formulators. Betaines can be a good substitute for diethanolamines. Expect your formulas to be more expensive and not work as well, but consumers may be more inclined to buy them.

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### The Soul & Science of Beauty.

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### CONTINUED

#### CONDITIONING INGREDIENTS

Since a number of the best conditioning ingredients come from synthetic chemistry and the petroleum industry, they have naturally developed a bad reputation. This includes ingredients like Petrolatum, Mineral Oil, and Propylene Glycol. Silicones also get swept up in this anti-man-made ingredient furor, so Dimethicone and Cyclomethicone are not good replacements.

Alternatives for these ingredients include materials derived from plants like natural oils, butters and waxes.

#### TALC

Talc (hydrous magnesium silicate) is a powdered ingredient used in cosmetics to absorb moisture and as a filler. The primary concern about talc is that it is linked to ovarian cancer. This is based on a study published during the 1990s. Subsequent reviews of all the available data has demonstrated that talc is safe when used as directed. The most **recent talc data supports** this position. However, science doesn't always matter, as demonstrated by the fact that cosmetic companies have recently lost a few high-profile court cases related to talc.

Some alternatives to talc include Corn starch, Tapioca Starch, Oat Flour and perhaps Baking Soda. They won't work for all talc formulas but they are worth a shot.

#### FRAGRANCES

We add fragrance to cosmetics to make products smell better or to reinforce a marketing story. Cosmetics without fragrance just don't sell as well. Unfortunately, some groups have convinced consumers all fragrances are awful.

You can make some of your formulas without fragrance but they won't be as well-liked by most consumers as fragrance-containing alternatives. You might try using natural oils instead of fragrance.

#### COLOR PIGMENTS

Without colorants, most cosmetic formulas would be yellow or brown. Color cosmetics would not exist. Some groups have declared that artificial colorants are carcinogenic. As usual, this claim is not supported by science.

In fact, of all the ingredients in cosmetics, colorants are the most highly regulated. Each batch of colorant must be approved by FDA prior to use. FDA also monitors the safety of colorants. Any color additive that is found to cause cancer in animals (or humans) may not be used in cosmetics.

That means the alternatives to color your products are strictly limited. You may be able to find some natural extracts that impart color but remember if the purpose of adding an ingredient is for color, then you are only allowed to use approved colorants from the FDA or EU.

#### FORMULATING TODAY

As you attempt to formulate with only ingredients that are acceptable to your consumers and your marketing department, there are two things to keep in mind.

1. Consumers want products that perform. If a product avoids all the buzz-word bad ingredients, but doesn't solve the consumer's problem, they won't buy it again.
2. Consumers are not as ingredient wary / knowledgeable as you think. Just because it's on the internet doesn't mean most consumers are aware of the negative reputation of ingredients. The reality is that most consumer just don't care.



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## Sunshine Not Required: Sunless Tanning Trends and Formulation Tips

By: Angie Pedersen

Gone are the days of laying out on a lounge chair in order to get that sun-kissed look. According to the Skin Cancer Foundation, about 90 percent of nonmelanoma skin cancers are associated with exposure to ultraviolet (UV) radiation from the sun.<sup>1</sup> With these concerns of skin cancer, and prematurely aging skin, demand for sunless tanning options continues to grow.

IBISWorld research indicates that the tanning salon industry has experienced growth over the past five years, rising to \$2 billion in revenue, with 2.6 percent annual growth from 2012 to 2017.<sup>2</sup> Likewise, the self-tanning product market is projected to grow to \$1,010.7 million in 2017.<sup>3</sup>

To help in your formulation of new sunless tanning products, we've compiled a few trends and tips, based on today's market.



### SUNLESS TANNING TRENDS

- Fashionista notes that, according to IBISWorld, **self-tanning lotions are most popular**, followed by bronzer powders, sprays, and towelettes. Only 2.3 percent of users ingest self-tanning accelerators, most of which are not FDA-approved.<sup>4</sup>
  - Sun Biz Weekly reports that **automated spray/sunless tanning booths** continue to be a strong part of salon business, taking advantage of improvements in Dihydroxyacetone (DHA) spray technology.<sup>5</sup>
  - **Sunless tanning technology has also improved in terms of time**, decreasing from an hours-long process to mere minutes.
  - Improved technologies have also led to **greater color options and applications methods**.
  - **Recyclable clothing and accessories** have been specifically designed to wear post-spray tan, to avoid stains.<sup>6</sup>
- Researchers are exploring the effects of high consumption of dietary carotenoids as a way to increase skin yellowness, and thereby mimic a skin tanning effect.<sup>7</sup>

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### That Youthful Glow: Contemporary Anti-aging/Skin Repair Technology By: George Deckner

Anti-aging is the fastest growing segment in skin care with experts predicting the global skin care market will hit \$196.67 billion dollars by 2024<sup>1</sup>. The global skin care market is divided into face and body segments, with face split into anti-aging, sun protection, and skin lightening.

The demand for higher efficacy anti-aging creams is expected to help the face segment grow significantly faster than the overall skin care market in the future. Currently the best anti-aging products can reduce fine line/wrinkles by approximately 50 percent and lighten skin as well as prescription 4% Hydroquinone.

#### SIGNS OF SKIN AGING

Anti-aging formulations are moisturizer-based products claiming to make consumers look younger by reducing, or preventing signs of skin aging. These signs include:

- skin sagging
- wrinkling
- hyperpigmentation/yellowing
- dryness
- solar elastosis

#### POOR TEXTURE

#### COSMETIC CLAIMS

It is important to remember that FDA defines cosmetics as “articles intended to be rubbed, poured, sprinkled, or sprayed on, introduced into, or otherwise applied to the human body for cleansing, beautifying, promoting attractiveness, or altering the appearance.”<sup>2</sup>

Recent FDA warning letters suggest they will be much more aggressive in the future about cracking down on claims made by the industry. Cosmetic claims made for anti-aging products need to be linked to moisturization and the appearance of skin, not how actives work.

Good moisturizers can reduce the appearance of wrinkles by up to 30 percent and significantly improve skin firmness and elasticity without the use of any “actives”. This highlights the importance of developing a good base formulation in which to add your active to help maximize effectiveness.

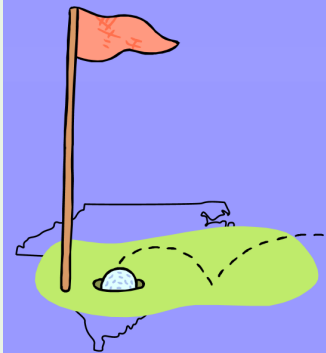
#### SKIN-AGING FORMULATION HISTORY

In the 80s, Avon launched one of the first anti-aging products on the market containing stabilized Ascorbic acid (vitamin C). Ascorbic acid is very unstable in water and needs to be formulated into anhydrous vehicles for optimum stability.

During the next 30 plus years, numerous stable vitamin C derivatives were developed such as Magnesium/Sodium Ascorbyl Phosphate, Ascorbyl Glucoside, Ethyl Ascorbic acid and Tetrahexyldecyl ascorbate. Ascorbates are believed to act as antioxidants, stimulate Collagen formation, and lighten skin. Currently Ascorbates are used mainly in skin lightening products or in combination with other anti-aging actives to boost performance.

#### THE RETINOIC ACID REVOLUTION

In 1986, Dr. Albert Kligman clinically demonstrated that a prescription acne cream, Retin-A, containing Retinoic acid could significantly reduce skin wrinkling and improve the overall appearance of skin. This was one of the first large, well-designed studies demonstrating that a topically applied product could improve photoaged skin.



### CONTINUED FROM PAGE 9

Retinoic acid is believed to work by increasing cell turnover, preventing collagen breakdown, and thickening the epidermis. However, it can cause irritation in some subjects.

In 1995, Renova cream containing .1% Retinoic acid became the first drug approved by FDA to treat photo-aged skin. Johnson and Johnson launched the first clinically effective OTC products containing stabilized Retinol, a less potent form of Retinoic acid, in the 90s under the ROC and Neutrogena brands.

Retinol is a much milder form than retinoic acid that when topically applied is oxidized to Retinal, which is further oxidized to Retinoic acid. The challenge in formulating with Retinol is to get good stability and efficacy while minimizing skin irritation. It also needs to be stabilized against UV for daywear application.

Currently there are numerous Retinol mimics that have been developed using genomics to model which genes are up and down regulated by Retinol. These mimics have good clinical efficacy when used alone or in combination with Retinol and have better stability with less irritation. Retinol to this day remains as one of the top performing and best documented skin repair actives currently available.

#### THE INTRODUCTION OF ALPHA HYDROXY ACIDS

The era of modern anti-aging products began with the launch of products containing alpha hydroxy acids. Alpha hydroxy acids (AHAs), like Glycolic and Lactic acid, work by promoting cell exfoliation and cell turnover. AHAs revolutionized the skin care market when Avon and Neoteric (Scott's Liquid Gold) launched Glycolic acid based products in the early 90s. The sales growth of these products was phenomenal and by 1994, sales of these two products alone totaled \$300 million dollars. By 1996 more than 45 companies were manufacturing over 200 different AHA-containing products.

This began the modern trend of developing performance based anti-aging skin care products that deliver consumer perceivable benefits backed by objective clinical data. AHAs helped create the current prestige mass-market anti-aging skin care category.

Sederma in 2000 launched Matrixyl® (Palmitoyl pentapeptide-4), a peptide-based active ingredient and one of the first anti-aging ingredients with 30-day in-use clinical efficacy data versus a placebo control. Previously, suppliers rarely did these types of studies which are commonplace today.

In 2015, Matrixyl received the 25 Years of Innovation Award, recognizing the product that has had the greatest impact on the Personal Care ingredients market in the last quarter-century.<sup>3</sup>

#### PEPTIDES: MULTI-FUNCTIONAL SKIN CARE ACTIVES

Peptides are differentiated from proteins based on size, with peptides normally containing less than 50 amino acids and typically less than 10. Peptides act as messengers to signal skin to produce different types of tissue to promote healing. Applying peptides tricks skin into thinking that it is injured and needs to make additional types of proteins. Signaling peptides typically contain an active amino acid sequence that can induce or inhibit the formation of a specific type of protein.

Peptides are multi-functional skin care actives that can reduce wrinkles, treat acne, improve skin tone/elasticity, and lighten or tan skin. They currently are among the most popular actives used in anti-aging products today because they are easy to formulate, potent, and are very cost effective on a use basis (typically <20ppm). A well-formulated peptide-based anti-aging product combined with other actives can have comparable performance to Retinol without being as irritating.

#### FUTURE TRENDS

- High demand and growth due to aging population demographics
- Development of more natural-based actives
- Less new actives are being developed due to the need for global ingredient approvals. This has led to the development of more synergistic active combinations.
- Greater use of genomics and in silico computer modeling to develop new skin repair actives
- Greater focus on better delivery of skin care actives. Current actives can vary up to 400 percent in efficacy in responder subjects versus the average results. Most of this difference is due to poor bioavailability in non-responder subjects.
- Greater use of devices and oral supplements combined with topicals to improve efficacy

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