

Society of Cosmetic Chemists

Carolina Chapter



Society of Cosmetic Chemists
Carolina Chapter

February 2018
Volume 114

JOIN US FOR
OUR FIRST MEETING OF 2018!

MARCH 22, 2018



Restaurant Forty Six
101 West Avenue
Kannapolis NC 28081

WINE, ROSES, AND CHOCOLATE
PRESENTATION BY: NELSON AYALA

REGISTRATION	4:30-5:00
PRESENTATION	5:15-6:00
DINNER	6:00-7:30

MEET OUR SPEAKER ON PAGE 5

Visit our website to register!

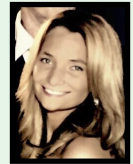
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Non-Members \$50

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HatchBeauty Labs
Tel: (919) 908-8720



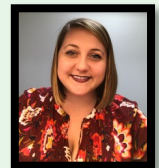
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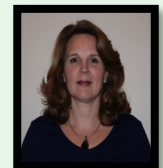
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Welcome 2018 Officers!

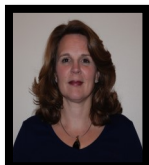
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LETTER FROM THE CHAIR: SHARI CLEMENTE

Dear Members,

I wish everyone has had an exciting start to the New Year! We have a fun twist on an existing presentation for our first meeting of the year. A chapter favorite, Nelson Ayala, has a interactive presentation planned for us on Wine, Roses, and Chocolate in Kannapolis, NC at Restaurant 46. Please visit our website for the all the updates on our Kiawah Natural Symposium. We are unveiling updates monthly!

All the best,
Shari

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Naturally Kiawah Symposium

Kiawah Island, SC

October 3-5, 2018

Special Events

October 3- CEP Courses

October 3&4 – 5 - 6:30 pm Cocktail Reception & Supplier Showcase at East Beach Conference Center

October 4 - Full Day Technical Seminar

October 5- Annual Golf Outing at Cougar Point
Spa Treatment at the Sanctuary

FOR ADDITIONAL INFORMATION

Michelle Linscott - michelle@xytrus.com

Shari Clemente - sclemente@Hatchbeauty.com

CALLING ALL PAPERS

Submit Abstracts to scarolinas@gmail.com using the Abstract Cover Sheet found on our website by April 1, 2018.



PRESENTATION TOPICS

- How Are Advances in Science Effecting the Development of New Natural /Green Raw Materials and Products
- Eco Friendly Manufacturing (carbon footprints, alternate forms of energy, waste management techniques)
- Effect of Natural/Green Products on Skin Biology
- Fair Trade Opportunities in Personal Care
- Preservation and Stabilization of Natural Products
- Marketing and Consumer Trends
- Regulatory Updates
- Sustainable Sourcing and Manufacturing
- Novel Delivery Systems for Natural Products
- Green/Natural Packaging

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CONTACT MICHELLE LINSCOTT

michelle@xytrus.com

Society of Cosmetic Chemists

Carolina Chapter



Interested in Advertising with the Carolina Chapter?

Dear Supporters of the SCC Carolina Chapter,

Thank you for support of the Carolina Chapter in 2017. I am writing to let you know we have begun our 2018 advertising campaign and would love to have your continued support.

This year we will have a minimum of 4 technical newsletters in addition to a special edition newsletter concerning our Kiawah event, and as a bonus, all advertisers will be listed on our SCC Carolina Chapter website.

We will host our 6th technical seminar and golf event at Kiawah Island Resort, October 3-5 2018. Once again we will continue our natural theme for this year's Kiawah event. We are looking for companies who are interested in sponsoring the event.

We are pleased to announce that advertising costs for 2018 will remain unchanged for the 7th year in a row. Outlined below is the cost of advertising for 2018:

- 2 x 2 Ad is \$300
- 2 x 3 Ad is \$350
- 2 x 4 Ad is \$400
- 3 x 4 Ad is \$450
- 4 x 4 Ad is \$525

Note: We can accept both color and black and white ads

We are asking for your commitment and payment by December 31, 2017.

If you would like to submit a short technical paper for publication in the newsletter, please contact sclemente@hatchbeauty.com.

Please mail your check to our chapter treasurer, Michelle Linscott c/o Xytrus, 9200 Stockport Place, Charlotte, NC 28273. Please forward your ad to Michele at michelle@xytrus.com.

Thank you for your continued support of the Society of Cosmetic Chemist - Carolina Chapter.

Sincerely,

MICHELLE LINSKOTT
ADVERTISING CHAIR OF THE SCC CAROLINA CHAPTER
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Biography of Nelson Ayala, Ph.D., Distinguished Toastmaster

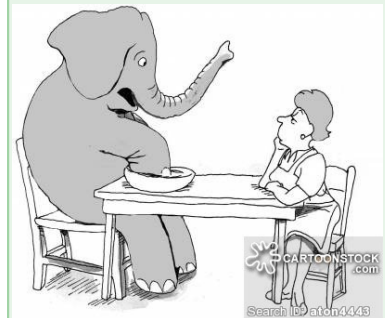
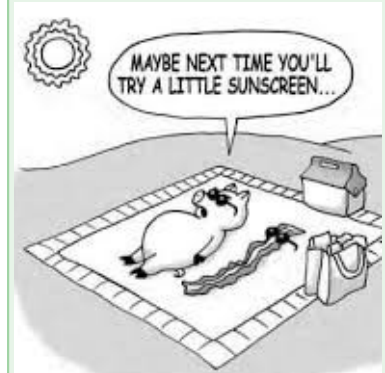
Nelson was born in New York City and graduated from the Bronx High School of Science, Brooklyn College with a BS in chemistry, SUNY Stony Brook with a MS in chemistry, Lynchburg College with a MBA, and UVA with a Ph.D. in physical chemistry. As a Ph.D. graduate of the University of Virginia, he got his first taste of Virginia in the 80's. In the 90's, he was a tour guide at the Brotherhood Winery in Washingtonville, New York, which is the oldest continuously operating winery in America. His interest in sensory science has fed his creativity in his career; Nelson has worked to create new consumer products that either taste good, smell good, or feel good on the skin. He has worked in new product development on consumer products at Unilever, Westwood Chemical, Carter Wallace, Fleet Labs, and Prestige Brands. He has patents on taste masking, oral rehydration, anti-itch, antiperspirants, and deodorants. He has authored several papers in major journals. Nelson has been a member of the Society of Cosmetic Chemists in the New York and Virginia sections. As a member of Toastmasters International since 1990, Nelson enjoys making presentations on topics related to health, beauty, and career/personal development.



Wine, Roses, and Chocolate

The challenge (and the joy) of the cosmetic chemist is to create products that have exquisite appeal for their consumers. We will explore the sensorial aspects that make products successful. The audience will have an opportunity to taste wines, chocolates, and smell flowers from around the world. We will learn more about the art and science of evaluating scents and tastes, which will add greatly to our enjoyment of the finer things that we will be tasting and smelling.

Enjoy a Laugh!



"I've tried everything. My skin is still as dry as an elephant's trunk."



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WATER: AN IMPORTANT, UNUSUAL, PERSONAL CARE INGREDIENT

BY: GEORGE DECKNER

Water is the most important, unusual, and underappreciated ingredient used in personal care. It is also one of the most peculiar materials found in nature with over 74 reported scientific anomalies¹. Many these anomalies are due to the ability water to form short-lived hydrogen bond connections.

Water is a colorless, odorless, liquid with an exceptionally high boiling and freezing point for its molecular weight. It has a molecular weight of 18 and is comprised of Oxygen covalently bonded to two Hydrogen atoms. It is the only known material that can co-exist in a solid, liquid, and gaseous state.



Physicists have also demonstrated that somewhere between 40 and 60°C, liquid water can change states, exhibiting different properties depending on what form it switches to². The crossover temperatures were approximately 64°C for thermal conductivity, 50°C for refractive index, 53°C for conductivity, and 57°C for surface tension.

A research team led by Gerald Pollack from the University of Washington in 2010 discovered what they referred to as exclusion zone (EZ) water³. Molecules of liquid water near hydrophilic surfaces are arranged in a hexagonal crystal lattice and have properties dramatically different than conventional water. These include having a UV absorption at 270 nm, more viscosity, and a different refractive index. It is believed that all water found in living cells is in the form of EZ water. This form promotes protein conformation/folding and many of the redox reactions critical for life to exist⁴. Recently scientists at MIT discovered that if you confine water in a Carbon nanotube, its freezing point can be dramatically increased to over 105°C⁷.

A recent controversial phenomenon is the reported ability of water to retain a memory of objects placed in it. When flowers are placed in water and removed and the water is flash cooled, it exhibits a unique crystal pattern dependent on the type of flower used⁵. Several researchers have made similar memory claims but their experiments often can't be reproduced⁶.

Apart from Mercury, water has the highest surface tension of all liquids¹ and is one of few known substances that expands when frozen and can float on top of its liquid state. Water reaches its maximum density at 4°C, causing water to freeze from the top down. If water froze from the bottom to the top, most aquatic life could not survive on Earth.

More than 100 years ago Michael Faraday discovered that a thin film of liquid-like water is present at the surface of frozen ice that is well below 0°C. This water has very different properties than normal water. This film also makes ice slippery and is crucial for the motion of glaciers⁸.


WATER IN PERSONAL CARE FORMULATIONS

Water is an ideal carrier for personal care formulations, as it is inexpensive, safe, and readily available. It also is one of the best known solvents, dissolving a wide range of materials due to its high polarity (dielectric constant), and low molecular weight.

Deionized or USP purified are the most common grades of personal care water and are typically tested for total organic carbon (TOC), conductivity, pH, and microbiological count. This type of water is normally produced either by distillation or using a mixed bed ion exchange column. Additional processing such as UV irradiation is also normally employed to insure a low microorganism count.

The top 10 water anomalies¹

- Water co-exists in the solid, liquid, and gaseous state and can sublime under pressure from the solid to the gas state (freeze drying).
- Water has an unusually high melting/freezing point and expands on freezing.
- Water has an unusually high boiling point.
- Water has a very high surface tension.
- Water is most dense at 4°C and frozen water floats on top of liquid water
- Water has an exceptionally high specific heat capacity which means it requires a lot of energy to raise its temperature by a given amount.
- Water has very low compressibility.
- The speed of sound in water increases with temperature up to 74°C, after which it starts to fall again.
- Water molecules diffuse more easily, not less easily, at higher pressures.
- Water becomes less viscous, not more viscous, at higher pressures.



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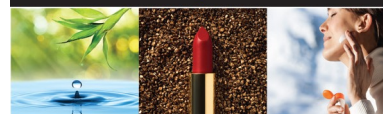
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Personalized Retail: Friend or Freaky?

Consumers crave smart, personalized service, but they have some concerns, according to Accenture.

<http://bit.ly/2l8CR2Q>

US consumers are locked in a vicious circle with brands over customer experience, according to new research from Accenture. While 44% are frustrated when companies fail to deliver relevant, personalized shopping experiences, nearly half (49%) are concerned about personal data privacy as they subscribe to intelligent services designed to understand and anticipate their needs.

In fact, some say it can give them the heebie-jeebies.

Accenture found nearly half (48%) of US consumers would use "smart-reordering" services where intelligent sensors in the home pre-empt when a product, such as laundry detergent, is running low and automatically re-orders it on their behalf. Another 36% use digital assistants.

And while the vast majority (89%) are satisfied with the experience, 40% say it can feel slightly creepy when technology starts to correctly interpret and anticipate their needs.

Accenture finds poor personalization and lack of trust cost US organizations \$756 billion last year, as 41% of consumers switched companies. Without deeper customer insight, companies cannot deliver the experiences they crave, said the New York-based firm.



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Moisturize Me! The Keys to Effective Moisturizers

By: George Deckner

Moisturizers are products that help the skin retain moisture and maintain a normal skin barrier function. Great moisturizers need to deliver superior hydration while achieving a high level of consumer acceptance. This can be difficult because good hydrating ingredients tend to leave the skin feeling tacky. Facial moisturizers, in particular, need to be non-greasy, non-tacky, and fast absorbing. Oil in water emulsions based on polymer-stabilized lamellar gel networks are the dominant product form due to superior skin feel and moisturizing performance.

TODAY'S MOISTURIZER MARKET

The market is broadly divided into hand and body products and facial moisturizers, however most facial moisturizers are rarely positioned as moisturizers but more as anti-aging products due to line/wrinkle reduction, and increased skin firmness and elasticity claims.

A good moisturizer can reduce the appearance of fine lines and wrinkles by up to 30 percent. Moisturization performance is critical to make anti-aging claims since these claims need to be linked to moisturization and the appearance of skin in order to be classified as cosmetics and by the FDA.

Most consumers perceive skin dryness when the moisture content of the Stratum Corneum, or the outermost skin layer, drops below 10 percent. This normally occurs during the winter months when the air temperature and indoor humidity are low.

Good moisturizing performance is especially critical for hand and body lotion formulations since the hands and lower leg areas are especially prone to dry, flaky skin. Facial skin seldom reaches the same level of dryness.

Another important benefit of moisturizers is the ability to repair the barrier function of skin caused by chronic subclinical skin irritation. This occurs year-round and significantly contributes to skin aging. This is why all anti-aging/skin repair actives should be formulated in a good moisturizing base formulation.

My analysis of marketed hand and body lotions has shown that all of the top performing formulations are oil in water lamellar gel network based emulsions and three of 55 of these used cationic-based emulsifiers. These emulsions are highly substantive and help retain emollients and humectants in the Stratum Corneum, which is critical for superior moisturizing efficacy.

The top five all contained significant levels of Glycerin as the primary humectant (~5-20 percent), all contained petrolatum, and all contained skin barrier building ingredients. My top ratings were as follows:

1. **Vaseline Sheer Infusion Body Lotion** (Unilever) contains 20 percent of a humectant blend (Stratys-3) which is claimed to moisturize skin significantly better than all of the leading hand and body lotions sold in Europe and North America at .5, two, and four hours after application. • Stratys-3 is comprised of Glycerin, Hydroxyethyl Urea (Hydrovance-AkzoNobel Surface Science), Dihydroxypropyl Trimonium Chloride (Dow Chemical-proprietary to Unilever), as well as Eucalyptus Globulus Leaf Extract (stimulates epidermal lipid production)
2. **Olay Quench Daily Lotion**, with Vitamins E & B3 (P&G) contains Glycerin, Petrolatum (reduces transepidermal water loss (TEWL)), Isopropyl Isostearate (active hydrating emollient), Niacinamide (stimulates epidermal lipid production), Panthenol (soothing aid), Betaine (humectant, skin osmolyte)
3. **Curel Ultra Healing Lotion for Extra Dry Skin** (Kao Brands) contains Glycerin, Petrolatum, Cetyl PG Hydroxyethyl Palmitamide (epidermal lipid mimic), Eucalyptus Globulus Leaf Extract (stimulates epidermal lipid production)
4. **Gold Bond Ultimate Softening Skin Therapy Lotion** (Chattem) contains Hydroxyethyl Urea, Glycerin, Ceramide II Complex (epidermal lipid mimic), Petrolatum (TEWL reduction), Panthenol (soothing aid)
5. **Aveeno Active Naturals Eczema Therapy Moisturizing Cream** (Johnson and Johnson) contains Glycerin, Petrolatum (TEWL reduction), Ceramide II (epidermal lipid mimic), Avena Sativa (Oat) Kernel Extract (soothing aid), Panthenol (soothing aid)
6. Current moisturizer trends
7. Trends in formulating contemporary moisturizers include using green sustainable ingredients, paraben free, Propylene Glycol free, use of skin osmolytes/polymers as humectants and using epidermal lipid like ingredients (Ceramides, Ceramide mimics) and stimulants for skin barrier repair. The composition below is representative:

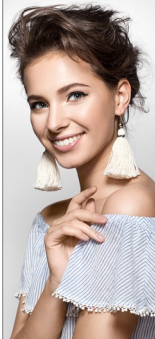
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BY: GEORGE DECKNER

- **Water (60-75%)**
 - **Humectants (3-20%):** Glycerin is most commonly used but can be quite tacky when used over 5%. Many top performing products use Hydroxyethylurea (Hydrovance-Akzo Nobel) combined with Glycerin due to its superior skin feel and hydration.
- The most effective humectant currently available is **ElfaMoist AC Humectant** (Acetamidoethoxyethanol-AkzoNobel Surface Science). It is more effective than Glycerin with significantly less tack.
- Skin osmolytes like Betaine, Inositol, and Taurine can also retain moisture in keratinocytes and prevent cell shrinkage.
 - **Emollients (5-15%):** historically most hand and body lotion formulations used Petrolatum due to its ability to reduce TEWL or skin moisture loss. I recommend using emollients which can positively impact the crystallinity of epidermal lipids and have a good skin feel. These include:
 - Isopropyl Isostearate for improved hydration
 - Isostearyl Isostearate for reduced TEWL
 - C12-13 Lactate for stimulating epidermal lipids production and hydration
- **Skin barrier building actives (0-2%):** These ingredients include Ceramides, Ceramide mimics—such as Cetyl PG Hydroxyethyl Palmitamide— and Ceramide II Complex. Another approach has been to use ingredients such as Niacinamide and Eucalyptus Globulus Leaf Extract to promote the production of epidermal lipids in skin.
- **High Hydrophilic-lipophilic balance (HLB) Emulsifiers (.2-2%):** Cetearyl Glucoside, PEG 100 Stearate, Distearyl Dimethyl Ammonium Chloride, Cetareth 20, PEG 40 Stearate
- **Low HLB emulsifiers (2-7%):** Cetearyl alcohol, Stearyl alcohol, Cetyl alcohol, Glyceryl Stearate
- **Polymeric stabilizers (.1-1%):** Xanthan gum, Carbomer, and Acrylates/C10-30 Alkyl Acrylate Crosspolymer
- **Preservatives (.5-1%):** Phenoxyethanol, Benzyl alcohol, Benzalkonium Chloride
- **Preservative potentiators (.05-2%):** Ethylhexy Glycerin, Caprylyl Glycol, Hexanediol, Pentylene Glycol,
- **Chelating agents (.05-.1%, also act as preservative potentiators):** Glutamic acid, N.N-Diacetic acid, Sodium Phytate, Tetrasodium Iminodisuccinate
- **Fragrance (0-.2%)**

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