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## **Ashland presents "root-to-tip" hair-care solutions based on hair type at in-cosmetics 2015**

### **Demonstrating how to rejuvenate hair, accentuate natural texture and create multidimensional styles, Ashland reveals the beauty of all hair types around the world**

BARCELONA, Spain - Spotlighting hair that looks, feels and styles extraordinarily well, Ashland Inc. (NYSE: ASH) revealed hair-care solutions at in-cosmetics 2015 that bring out the exceptional beauty of numerous hair types around the world. Applying expertise in hair-care ingredient technologies and knowledge in key consumer drivers - hair wave, hair thickness and hair damage - the company designed prototype formulations that address the root-to-tip hair-care needs of consumers everywhere. The results, demonstrated on mannequins, indicate how holistic hair-care formulating strategies based on hair type will be utilized going forward to assure the look of beautiful hair for all consumers.

"Complexity in hair care is often attributed to the diversity of the hair substrate, environmental impacts, consumer habits and product regimens," said Bert Kroon, global research and development director hair and home care, Ashland Specialty Ingredients. "To optimize the beauty of every hair type, it is necessary to look at the behavior of each and design holistic solutions, from cleansing and healthy scalp maintenance to repair of hair fibers and style creation. Addressing the requirements of each hair type from root to tip, consumers are far more likely to embrace their hair texture."

Focusing on the six primary hair textures - fine, straight, wavy, coarse, frizzy and curly, and adding the growing trend in beards - Ashland offers a holistic root-to-tip approach in the design of ingredients and the architecture of hair-care formulations. Starting with biofunctional plant extracts to maintain hair vitality, and including deposition polymers to advance anti-dandruff actives and care ingredients in scalp and shampoo formulations, hair-care solutions begin at the root. Moving to polymer technology that boosts volume, helps repair damaged hair fibers, enhances the hair's natural texture and assures long-lasting humidity-resistant styles in hair conditioner, treatment, styling and finishing products, the look of beautiful hair is optimized.

Ashland's holistic solutions approach is supported scientifically with a range of measurements and consumer science evaluations based on hair type.

Now more than ever, working with hair's natural texture is also an important component of multidimensional hairstyles. Today's sleek and smooth hair trend and in contrast the "beach wave" look is largely a function of texture control and modification and may be tailored to specific hair types with novel formulation architecture and polymer choices.

Creating texture solutions based on hair type requires expertise in ingredients and formulation architecture together with a strong working knowledge of the morphology of different hair. With expertise in our dedicated laboratories in The Netherlands, the United States, Brazil, Shanghai and Mumbai, Ashland is able to create unique ingredients and showcase their performance through prototype formulations supported with in vitro and in vivo data.

#### **"Hair texturity"**

Referring to this expertise and measurement capability as "hair texturity," Ashland demonstrated how it applies this knowledge to craft the look of beautiful hair textures. A case in point is seen with formulations designed for the needs of European men. Addressing healthy-looking hair texture in three ways, Ashland recommends that men start with a highly effective anti-dandruff shampoo. Its prototype formulation called Dandruff Defense Conditioning Shampoo, based on the N-Hance™ 4572 deposition polymer, is proven in a laboratory study to deliver zinc pyrithione to the scalp with exceptional efficiency.

Next in line is the Conditioning Spray Milk with Dynagen™ biofunctional. Applied to the scalp, it leaves hair fuller, stronger and shinier. *In vivo* studies with the formulation demonstrate measurable benefits in the terms of hair strength, while a consumer panel study revealed consumer-perceivable benefits in terms of fuller, stronger, shinier and healthier hair-feel. Finally, to maintain the look of beautiful texture during styling, Ashland demonstrated a working spray with the Advantage™ 4910 polymer.

In another series of experimental formulations directed toward women with naturally curly hair, beautiful hair texture is addressed in two steps. A Durable Intensive Moisture Softening Shampoo formulation with Ashland's N-DurHance™ A-1000 conditioning polymer leaves hair looking soft, conditioned and shiny. Second, to mend split ends that can compromise the look of beautiful curls, Ashland recommends the Continuity Daily-use Conditioner featuring its polyelectrolyte polymer complex (PEC).

In all, more than 15 prototype formulations with full stability, micro-challenge data and performance data for cleansing,

protecting, repairing damaged fibers, conditioning and styling hair were evaluated for their textural benefits on specific hair types. The results were showcased as finished styles on mannequins throughout Ashland's texture bar.

### **Next-generation approaches to hair-care formulation and measurement substantiation**

Ashland, the world leader in hair-care ingredients, works with manufacturers and marketers of hair-care brands to utilize its technologies for optimal effects in a range of product platforms. Its expert polymer synthesis team, materials scientists, formulation experts and consumer science groups all work together to design and evaluate polymers and blends with the potential to significantly advance consumer-perceivable benefits in demonstration formulations.

"At Ashland, our goal with an integrated team approach is to apply ingredient expertise and formulation architecture in a way that demonstrates the potential to formulate new products with benefits previously unavailable in the marketplace. Bringing forward novel concepts and substantiating them with advanced measurement methods, and further evaluating them at our consumer science laboratories around the world, Ashland offers the hair-care industry a comprehensive approach to formulation and measurement substantiation, from root to tip," said Bert Kroon.

### **Addressing the top three needs in consumer hair care**

"Hair fall is one of the top three consumer hair care concerns throughout the world," said Sangeetha Subramanian, global marketing manager for styling, Ashland Specialty Ingredients. "Consumers everywhere want simple solutions to prevent hair fall and to revitalize hair. Addressing these challenges at the hair root is an obvious starting point."

Hair volume, on the other hand, is a universal need in Europe and North America.

"In populations that tend to have fine hair, a need exists to boost volume. Consumers want the perception of fullness and body. Ashland's Aquaflex™ XL-30 polymer, an amphoteric polymer with unique film properties, is demonstrated to boost hair volume in styling and rinse-off applications," she explained.

Hair fiber repair remains at or near the top of the list of consumer needs, particularly among women.

Constant coloring, flat-ironing and blow-drying often leads to hair fiber damage. Ashland introduced the N-DurHance A-1000 conditioning polymer last year to address the need for long-lasting conditioning and hair fiber repair from rinse-off and leave-on formulations. Other polymers in Ashland's portfolio are proven to lend protective benefits during styling.

### **Advancing hairstyling with a broad technology platform**

Most recently, Ashland introduced the Advantage 4910 polymer, based on hair fixative technology with a long history of use in hairspray formulations. Adding this legacy technology to its portfolio, the company now offers formulators and marketers of styling products on all of the major platform technologies required to produce today's consumer-desirable formulations. Just as importantly, following the commercial launch of its new polymer offering in January, Ashland's aerosol technology specialists found formulation synergies with other polymers in its portfolio that will serve to improve the performance capabilities of hairspray.

### **Sponsoring innovation in hairstyling at the Spring 2015 Avant Institute Symposium**

Sponsor of the Avant Institute Symposium, Ashland established the program in 2009 to foster and promote scientific research relevant to the development and commercialization of technologies for the personal care industry. Held twice a year, the invitation-only symposium serves as a forum to advance the latest ideas in science and to apply that knowledge in commercialization activities. The Spring 2015 Avant Institute Symposium, titled, *Hair: Innovations in Styling and Modeling*, will be held at the in-cosmetics exhibition hall.

"As leaders in the development of hair-care ingredients, we are pleased to focus this symposium on hairstyling. The agenda is quite engaging with academic and industrial experts sharing their research on various topics that directly or indirectly provide insights to advance the science of hairstyling," said Linda Foltis, vice president of research and development, Care Specialties, Ashland Specialty Ingredients.

"Hair is our most valuable accessory; it is a reflection of health and beauty with individual social and cultural significance. Exploring the variations of hair texture across the globe and its impact on hydro- and biomechanical behavior and shape memory aids in the development of technologies to embrace or transform hair texture.

"With advances in styling capabilities, in both products and tools, it is important to understand how polymer technologies interact with the hair fiber assembly and the metal composites of styling tools to protect the fiber substrate. Innovative techniques to characterize and substantiate the performance of polymers in extreme styling and natural styling formulations will be discussed. Optimizing aerosol formulations - the leading product form in hairstyling - to meet regulatory guidelines and performance requirements, will also be outlined. The symposium will close with a presentation on the final touch," she said.

For more information, visit Ashland at the in-cosmetics exhibition in Barcelona, Spain, April 14-16, Stand 7D40, or on the web

at [Ashland.com/personalcare](http://Ashland.com/personalcare).

### **About Ashland Specialty Ingredients**

Ashland Specialty Ingredients is the #1 global producer of cellulose ethers and a global leader in vinyl pyrrolidones. It offers industry-leading products, technologies and resources for solving formulation and product-performance challenges. Using natural, synthetic and semisynthetic polymers derived from plant and seed extract, cellulose ethers and vinyl pyrrolidones, as well as acrylic and polyurethane-based adhesives, Ashland Specialty Ingredients offers comprehensive and innovative solutions for today's demanding consumer and industrial applications. Key customers include: pharmaceutical companies; makers of personal care products, food and beverage companies; manufacturers of paint, coatings and construction materials; packaging and converting companies; and oilfield service companies.

### **About Ashland**

Ashland Inc. (NYSE: ASH) is a global leader in providing specialty chemical solutions to customers in a wide range of consumer and industrial markets, including architectural coatings, automotive, construction, energy, food and beverage, personal care and pharmaceutical. Through our three commercial units - Ashland Specialty Ingredients, Ashland Performance Materials and Valvoline - we use good chemistry to make great things happen for customers in more than 100 countries. Visit [ashland.com](http://ashland.com) to learn more.

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