



Ecollaboration: a collection of eco-conscious formulations enabled by a sustainable approach to innovation

Poster ID 612

Donna Collins, Céline Lévêze-Bougaran, Sandro Sato, Tina Scavuzzo, Giada Tonet, Sam Costanzo, Marelli Alessandra, Anne-Marie Vincent, Morgane Le Meur, Charlène Courtet, Dow

Introduction:

ECO-conscious claims are now the #1 in personal care numbers globally

5.2% CAGR natural cosmetics market equivalent (2022-2027)

56% of consumers are willing to pay more for a natural cosmetics formulation

49% of consumers now consider bio-based ingredients sustainable packaging

We can only innovate better by innovating together.

PLANET

PEOPLE

PURPOSE

from collaboration to **ECOLLaboration**

Since first gaining global notoriety in the early 2000s, natural beauty has evolved to become the most relevant trend in the beauty & personal care industry. As a consequence, consumers around the world are attracted to cosmetic formulations which rely on a holistic approach to sustainability, combining performance with minimal impacts to the environment.

Dow has developed a collection of cosmetic formulations covering both skin and hair applications by focusing on:

ECOLLaboration | Concepts Collection
Rethink & Renew

Learn More

ECO-logy
Fostering the future of our industry while protecting our biodiversity

ECO-nomy
Enabling inclusive access to bio-based innovative ingredients across all regions and B&PC segments

ECO-system
Encouraging the industry and its consumers to adopt a circular approach to beauty ingredients, formulations and packages

ECO-nnections
Co-leading historically with internal & external partners the beauty of tomorrow

ECO-nsciousness
Promoting the next generation of conscious sustainability, leading by example through a combination of science & science

ECO-munities
Helping key stakeholders to navigate complex scenarios. Reaching out to the top gamechangers leading the creation of better living environments

Results & Discussion:

- 8 formulations covering skin and hair
- All formulations with at least 90% of natural origin content
- Following natural beauty trends without compromising performances
- Innovative and eco-conscious formats

SKIN CARE

HAIR CARE

rockmyDEO – Solid Deodorant

Attributes

- Anhydrous and s-format
- Zero waste / no applicator
- Water-less
- Travel-friendly

Featured products

- Swear absorption
- Easy to apply
- No film & no tacky
- Low whitening effect
- Does not contain antiperspirant salts
- Moisturization

Featured products

- Fluid AP, Low Odor is a high spreadability emollient with smooth after-feel.

rockmyDEO can last for 4 months ½ using one application per day

96%

stayonLIPs - Lip Cream

Attributes

- Water-based cream (> 50% water content)
- Smooth, light & fresh feel
- Oil-in-water emulsion
- Long lasting
- Naked color*
- Matte effect
- No fragrance added

Featured products

- MaizeCare™ Style Polymer is a water-dispersible corn-derived bio-polymer which acts as film-former and gives long lasting performance.
- DOWSIL™ EL-TIPS Silicone Elastomer is a high solids silicone elastomer formulated in a renewable sourced carrier which provides a rich smooth after-feel and is highly compatible with organic derivatives.

Adding 5% MaizeCare™ Style Polymer in stayonLIPs formulation leads to increased long lasting benefit. stayonLIPs is providing better rub-off resistance compared to benchmark.

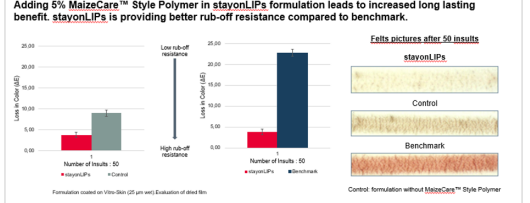
99%

Methods:

To highlight the formulations benefits, different methods have been used. For hair care products, curl retention test under high humidity conditions and combing test using Dia-Strom equipment on both wet and dry hair were conducted. Regarding skin care, sensory performance was evaluated by panels with customization of the experimental procedure to fit product format. Finally, long lasting benefit for color cosmetics formulations was evaluated with in-vitro film durability test.

Testing Details – Skin Care

Film durability / rub-off resistance	ViaioFace	Sensory Evaluation	Corneometer
<p>Test Principle</p> <p>Resistance to rub-off of a film coated on a skin mimicking substrate (Vivo-Skin, 25 µm wet). Resistance measured on film by colorimeter after friction cycles using wearability tester.</p> <p>Lower AE value indicates greater resistance to rub-off.</p> <p>Film composition: Formulation coated on Vivo-Skin (25 µm wet). Evaluation of dried film.</p>	<p>Test Principle</p> <p>Take images of the face with a high resolution digital camera through a tablet with Software Vio-Analyzer Total.</p> <p>Skin areas: cheek, nose, face, forehead.</p> <p>Pictures: before product application (index skin), after product application (time 0), after 15 min, 1h, 3h, 6h.</p> <p>Room conditions: 50% relative humidity (+/- 5%) and temperature 20°C (+/- 2°C)</p>	<p>Test Principle</p> <p>Evaluation of several skin parameters with panels (max 10 and trained panelists). Performed made using special statistical software.</p> <p>Test designed to compare products.</p> <p>Skin area: forearm.</p> <p>Measure: before product application (index skin), after 15min application, 1h, 2h, 3h, 6h, 1h, 3h, 6h.</p> <p>Room conditions: 50% relative humidity (+/- 5%) and temperature 20°C (+/- 2°C)</p>	<p>Test Principle</p> <p>Quantification of the water present in the surface layer of the skin by capacitance using a special probe.</p> <p>Skin area: forearm.</p> <p>Measure: before product application (index skin), after 15min application, 1h, 2h, 3h, 6h, 1h, 3h, 6h.</p> <p>Room conditions: 50% relative humidity (+/- 5%) and temperature 20°C (+/- 2°C)</p>



CLEARmystyle – Styling Gel

Attributes

- Clear formula
- Natural styling
- Enabled stiff, sleek to subtle definition
- Excellent humidity resistance
- Inclusive formulation

Featured products

- MaizeCare™ Clarity Polymer is a bio-based, readily biodegradable hair styling polymer with excellent clarity in water-based formulas.
- CELLOSIZE™ Hydroxyethyl Cellulose PCG-10 provides body to the formulation while maintaining ease of pouring.
- VERSENE™ Na2 Crystals is a chelating agent.

CLEARmystyle exhibits excellent curl retention and humidity resistance compared to untreated hair.

97%

Testing Details – Hair Care

Contact angle Water Repellency	Combing Force Reduction	Curl Retention High Humidity	Stiffness
<p>Test Principle</p> <p>Evaluation of water contact angle of hair treated with hair care formulations.</p> <p>The higher the contact angle, the higher the hydrophobicity of the hair treated (healthier hair).</p> <p>Hair used: slightly bleached Caucasian hair.</p> <p>For POWDERwow, 0.5g of powder was mixed with 5 mL of water in hand before application on hair tresses (2g).</p>	<p>Test Principle</p> <p>Evaluation of ease of combing on hair treated with hair care formulations.</p> <p>The lower the force, the easier the combing.</p> <p>Equipment used: Dia-3000, MT775 Miniature Tensile Tester.</p> <p>Hair used: slightly bleached Caucasian hair.</p> <p>For POWDERwow, 0.5g of powder was mixed with 5 mL of water in hand before application on hair tresses (2g).</p>	<p>Test Principle</p> <p>Evaluation of humidity resistance of hair styling products.</p> <p>Total length (cm) measured after 10 min exposure and overnight. Measurements: 1h, 2h, 3h, 6h, 1h, 3h, 6h.</p> <p>The lowest length loss, the higher curl retention.</p> <p>Equipment used: Humidity Chamber at 25°C/90%RH.</p> <p>Hair used: dark brown virgin hair.</p> <p>Quantity applied: 0.5g of product / g of hair.</p>	<p>Test Principle</p> <p>Evaluation of holding provided by hair styling products.</p> <p>Equipment used: The 2000N 3-point bend.</p> <p>The higher the bending force, the stiffer the force is.</p> <p>Hair used: dark brown virgin hair.</p> <p>Quantity applied: 0.2 g of product / g of hair.</p>

Conclusions:

- Collection of eco-conscious formulations with at least 90% natural origin content
- 8 formulations covering skin and hair
- Innovative and eco-conscious formats
- Sustainable approach from formulation to packaging
- 100% handmade with fabric leftovers
- ASBL / made in Belgium in an ASBL
- Packaging selection with local supplier prioritization and eco-friendly materials selection