#### PreScouter

# Green Cosmetics: Eco-friendly Products and Key Ingredients

Research Support Service November 2019

Prepared by: **PreScouter** 

Daniel Morales, PhD I Senior Project Architect Ezinne Achinivu, PhD I Project Architect Mallika Priya, PhD I Researcher



# **Intelligence Brief Question**

# What eco-friendly ingredients are being championed by existing and emerging players in the cosmetics industry, and how are they differentiated?

With increasing general public interest and legislation driving the megatrend of sustainability, key cosmetic manufacturers and emerging startups are continuing to innovate their products lines with environmentally-friendly ingredients and increasingly transparent practices. Eco-friendly cosmetics have extended beyond niche trends and can impart benefits for the consumer, producer and the planet simultaneously, such as enhanced brand reputation, lower toxicity, and improved product quality. Increasing numbers of studies have educated the public regarding the toxicity of conventional cosmetics, and the sustainable cosmetics market continues to grow rapidly and consistently. What are the eco-friendly ingredients that are being marketed and championed by existing and emerging players in the cosmetics industry? Where are the areas of opportunity to participate in this space, and what are the future trends for remaining competitive in this space?

In this Intelligence Brief, we identify and characterize the various product lines that are being marketed as eco-friendly and highlight key ingredients that are being utilized in such formulations.

# **Executive Summary**



# **Executive Summary: Overview**

PreScouter investigated the space of eco-friendly cosmetics in order to understand the different types of classifications, product offerings, and associated ingredients utilized through examples of commercially available products.

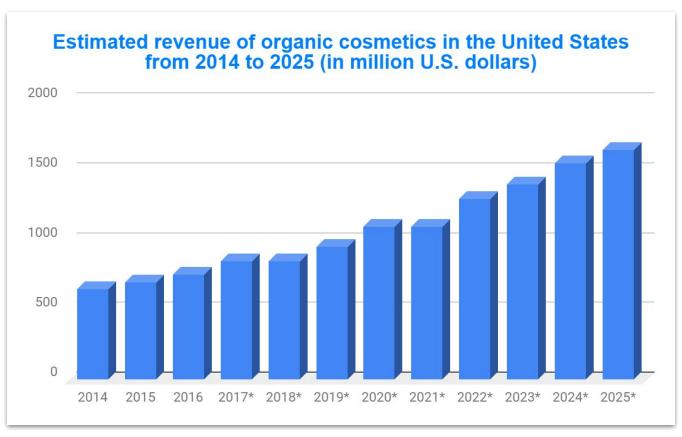
In this report, we identified and characterized **58 product lines** from leading cosmetic companies and emerging players who are promoting cosmetic products that are marketed under the following eco-friendly categories: Naturally Sourced, Organic, Vegan, Cruelty-Free, Biobased, Recyclable Packaging, Biodegradable, Fair Trade, Other (*lean manufacturing, charitable causes, etc.*).

Currently, the space is dominated by cosmetic companies embracing **vegan** and/or **cruelty-free** products and promoting that their products do not contain parabens, synthetic surfactants such as sulfates, essential oils, drying alcohols, silicones, synthetic sunscreens, and fragrances/dyes (depending on the end-use application). Opportunities exist for further differentiation by creating biodegradable formulations and utilizing ingredients from **renewable plant and bacteria sources**.

Another important aspect of the sustainable cosmetics space is the use of recycled packaging or the ability to return packaging to be recycled. However, the use of recycled by-products as initial ingredients for cosmetics has **yet to emerge as a prominent technology**.

# **Executive Summary: Market Opportunity**

The global market value for natural cosmetics is expected to increase from nearly \$34.5 billion in 2018 to roughly **\$54.5 billion in 2027**<sup>1</sup>. The US organic cosmetics market alone is expected to reach \$1.65 billion by 2025<sup>2</sup>, with most of the growth in revenue being attributed to **organic face creams**.

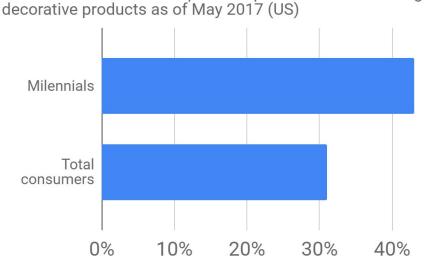


Source: <u>Statista</u> \* indicates projected values



# **Executive Summary: Market Opportunity**

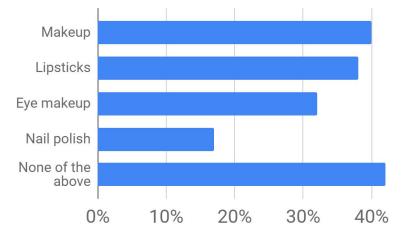
The main perceived benefits for consumers include lessening the ecological impact on the environment and reducing the undesired effects controversial ingredients have on our health.



Share of consumers who prefer to purchase natural or organic

Source: Drug Store News Magazine January 2018 Edition, page 68

Share of consumers who prefer to purchase natural or organic decorative products as of May 2017 (US)



Source: Statista Survey

# **Executive Summary: Key Drivers and Trends**

- North America was reportedly the largest regional segment of the organic personal care market in 2018<sup>3</sup> and is expected to continue to lead. A number of multinational companies, such as Aveda Corporation, Burt's Bees, and The Estée Lauder Companies Inc., with wide product portfolios are entering the game to maintain global presence.
- The May 2019 Sustainable  $\succ$ describes Cosmetics summit emerging trends being driven by packaging innovations, increased scrutiny of supply chains, emerging sources of novel green ingredients, green packaging materials, new business models and novel marketing experiences<sup>4</sup>.



Percentage of consumers avoiding harmful chemicals in personal care products. Source: <u>Cosmeticsbusiness.com</u>

# **Executive Summary: Key Drivers and Trends**

- As customers grow increasingly aware of the science of skincare, they are scrutinizing product ingredients, thus emphasizing formulation transparency from the cosmetics industry<sup>6</sup>. With consumers understanding the minor differences between ingredients, for example, the difference between retinol and retinoic acid, they are embracing products and brands with promoting formulation transparency.
- Multi-functional and sustainable packaging encompass a growing trend observed in 2019 across multiple verticals. The biowaste percentage and reusability of packaging materials are now seen in a completely different light and increasingly becoming important to consumer regarding their cosmetics<sup>5</sup>.
- With a renewed focus on living a minimal and sustainable lifestyle, skincare regimens are becoming overall streamlined<sup>6</sup>. With social media discussing every bit of skincare online, Korean products have received a much hyped attention especially the "glass-like skin" look and "rice water based scrubs". Thus, Korean skincare products have emerged as a major player in the cosmetic market.



# **Executive Summary: Mergers and Acquisitions**

#### **Key Drivers and Trends**

- The industry remains fragmented with a number of successful start-ups and entrepreneurial set-ups that are profitable as small businesses, thereby, prompting M&A activities.
- Large corporations are tapping into core demographic trends such as Generation Z, while boosting their popularity among millennial consumers. These key demographic groups have been described as the "the sustainability generation" or the "natural sustainability generation"<sup>7</sup>.
- Amongst the sustainably produced cosmetics, there is significant activity relating to vegan and cruelty free products.
- The mergers and acquisitions activity in the cosmetics industry is dominated by skin care (25%) and color cosmetics (23%).
- Over 50% of the mergers and acquisitions activity is controlled by large companies such as Unilever and L'Oréal<sup>8</sup>. Note: Many of the acquiring companies do not apply the same stringency of sustainability standards across all of their brands as those practiced by the companies they acquired. This creates a risk that consumers will view these acquired brands as being "corrupted" or "watered down" by their parent company."

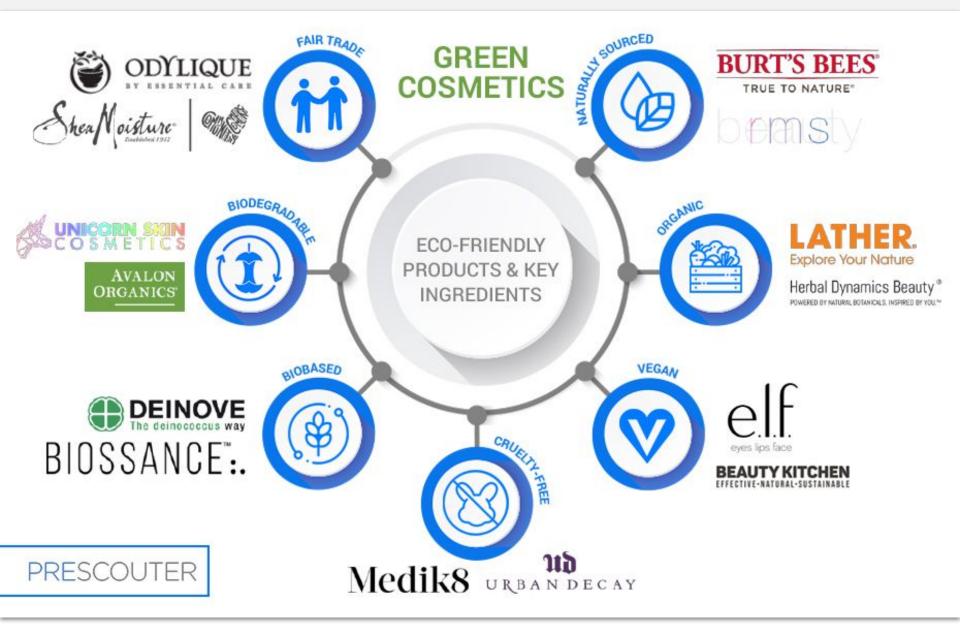
# **Examples of Major Mergers and Acquisitions**

COMPANY #1	COMPANY #2	CATEGORY	YEAR	VALUE
	DOLLAR SHAVE CLUB		2016	\$1 billion
Unilever	TATCHA.		2017	\$500 million
	Too Faced	<b>V</b> 🛞	2016	\$1.45 billion
ESTĒE LAUDER	smashbox	<b>V</b> 🛞	2010	N/A
ĽORÉAL		$\mathbf{\nabla}$	2016	\$1 billion
PARIS	LOGOCOS NATURKOSMETIK AG	۵ 🏹 🚱	2018	N/A
JHIJEIDO	DRUNK ELEPHANT <sup>TM</sup>		2019	\$845 million
	Y SOURCED VEGA +1.872.222	() () () () () () () () () () () () () (	BIOBASED	

# **Main Features of Each Company Covered**

Compony	Dueduet line	For Eviendly Classification Dog			Derre					
Company	Product line	Eco-Friendly Classification Naturally Cruelty- Veren Organia Bishared Recyclable Fair Biodeg-			Page					
		Sourced	free	Vegan	Organic	Biobased	Recyclable Packaging	Trade	rdable	
Burt's Bees	Skincare, makeup, body and hair care, lip care	S			S		Ś			16
RMS Beauty	Makeup	S	Ś		Ś					17
Lather	Face, body, hair, wellness		Ś		Ś					19
<u>Herbal Dynamics</u> <u>Beauty</u>	Skin and face care	Ś	Ś							20
e.l.f. Cosmetics	Skincare, makeup		S	S						22
Beauty Kitchen	Wet wipes			Ś					Ś	23
<u>Urban Decay</u>	Makeup		Ś	S						25
<u>Medik8</u>	Anti-ageing serum		S	S			Ś			26
<u>Deinove</u>	Still under development					Ś				28
Biossance	Skincare	Ś			Ś	Ś				29
Unicorn Skin Cosmetics	Makeup / glitter		S	S					S	31
Avalon Organics	Skincare, hair care, body	S	S	S	S		Ś		S	32
<u>Odylique</u>	Skincare, makeup	S	S	S	S		S	S		34
<u>Shea Moisture</u>	Skincare, lip care	S	S					S		35

### **Summary of Companies Profiled**



# References

- 1. https://www.statista.com/statistics/673641/global-market-value-for-natural-cosmetics/
- 2. <u>https://www.statista.com/study/51761/natural-organic-cosmetics-in-the-us/</u>
- 3. <u>https://www.grandviewresearch.com/press-release/global-organic-personal-care-market</u>
- 4. <u>https://www.newhope.com/beauty-and-lifestyle/10-emerging-sustainability-trends-natural-beauty</u>
- 5. <u>https://www.interpack.com/en/TIGHTLY\_PACKED/SECTORS/COSMETICS\_PACKAGING/News/Packaging\_tre</u> nds\_for\_cosmetics\_2019:\_Sustainability\_combined\_with\_luxury
- 6. <u>https://www.harpersbazaar.com/uk/beauty/skincare/a25568595/beauty-trends-2019</u>
- 7. <u>https://www.iliyanastareva.com/blog/generation-z-natural-sustainability-generation</u>
- 8. <u>https://www.atkearney.de/consumer-goods/article?/a/shop-or-drop-the-inevitable-path-for-growth-in-beauty</u>



# **Product and Ingredient Analysis**



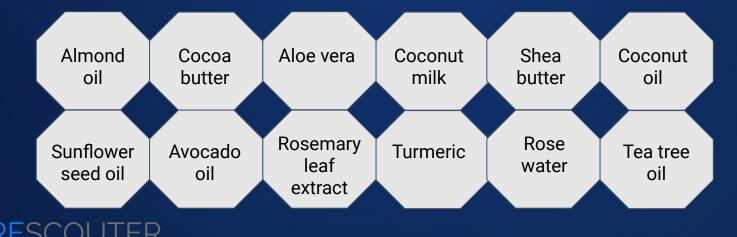
# **Naturally Sourced Ingredients**

The Council of Europe guidelines define naturally sourced cosmetics as a product consisting of natural substances of botanical, mineral or animal origin, exclusively obtained through physical, microbiological or enzymatic methods.

Currently, there is no established standard definition for "naturally sourced" cosmetic ingredients by FDA but the general understanding is any ingredient that is found in nature and is utilized in the production cycle as is/or with little modification. These ingredients are generally used for face and body care products.



#### Examples of the naturally sourced ingredients observed in the review of products



#### **Burt's Bees Mascara**



#### TRUE TO NATURE®

All Aflutter Multi-Benefit Mascara is one of the many products of Burt's Bees. The company's product variety and versatility is well known in both the U.S. and global market.

Being of 100% natural origin, this intensely pigmented, multi-benefit mascara features a blend of plant-based waxes and nourishing jojoba oil to deliver instant definition, volume, length and all-day wear. This product is available in 2 color shades.

Acquired by Clorox in 2007, all of Burt's Bees products are CarbonNeutral® certified.

The company claims to be making 100% natural origin formulas, and all products are with an over 95% natural origin.

Address: Consumer Care, P.O. Box 24305, Oakland, CA 94623

Website: https://www.burtsbees.com

Contact: Contact form



#### **References:**

- 1. <u>https://www.burtsbees.com/product/all-aflutter-multi-</u> benefit-mascara/792850903340.html
- 2. <u>https://www.carbonneutral.com/</u>

#### **RMS Beauty Lipstick**

RMS Beauty products are formulated using raw, food grade, organic, wildcrafted (harvested from the wild/natural habitat such as forest and ocean) and natural ingredients that are as close to their natural state as possible.

The founder of RMS Beauty describes the *Wild With Desire Lipstick* series perfect for everyday wear offering both hydration and maximum color pay-off. It is claimed to be made from certified organic products and is non-GMO, non-nano, soy-free, gluten-free, and cruelty-free.





Address: 1941 Savage Rd, Suite 500F, Charleston, SC 29407 Website: <u>https://www.rmsbeauty.com</u> Contact: 1-877-767-1147

#### **References:**

1. <u>https://www.rmsbeauty.com/products/wild-with-desir</u> e-lipstick?variant=53093189397

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# **Organic Ingredients**

The term 'organic' refers to how an ingredient was farmed; it must be prepared and grown without certain pesticides, chemical fertilizers, growth hormones, antibiotics, sewage sludge, genetically modified organisms, or ionizing radiation. Every geographic region has specific criteria for assigning "Organic" certifications/labelling. See USDA or IFOAM-EU for examples.



#### Examples of organic ingredients observed in the review of products



### **Lather Body Scrub**

Bamboo Lemongrass Foaming Body Scrub is one of the best selling scrub by this cosmetic company. This body exfoliator is formulated with powdered bamboo to gently polish and hydrate the skin. The formula creates a delicate foam to melt away dry and flaky skin, leaving it instantly brighter and irresistibly soft and smooth.

This product is free of parabens, sulfates, mineral oil, synthetic fragrance or colors and is vegan along with made up of organic ingredients.





Address: 17 E. Colorado Blvd. Pasadena, CA 91103

Website: https://www.lather.com/

Contact: press@lather.com

#### **References:**

1. <u>https://www.lather.com/collections/body-scrubs/prod</u> ucts/bamboo-lemongrass-foaming-body-scrub-1

## **Herbal Dynamics Beauty Toner**

Herbal Dynamics Beauty is a cosmetic company that harnesses the power of plant-based ingredients and extracts to deliver functional skincare benefits. The company offers products ranging from cleansers, toners, serums, eye masks, and moisturizers. The Rose Water Calming Face Toner is claimed to act on the following points:

- Brightens and evens skin tone
- Hydrates and plumps to soften fine lines
- Soothes inflammation and redness
- Supports radiant, smooth complexion

With chamomile extract, witch hazel, aloe vera, green tea extract, all contents are organic, natural, paraben-free and cruelty-free.

Address: 7147 E. Rancho Vista Dr. Suite 107D, Scottsdale, AZ 85251 Website: <u>https://www.herbaldynamicsbeauty.com/</u>

Contact: info@herbaldynamicsbeauty.com

# Herbal Dynamics Beauty®

POWERED BY NATURAL BOTANICALS. INSPIRED BY YOU.™



#### **References:**

1. <u>https://www.herbaldynamicsbeauty.com/collections/t</u> oners/products/rose-water-calming-face-toner

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## **Vegan Ingredients**

Vegan beauty products refer to products that do not contain any animal ingredients, animal by-products, or animal-derived ingredients. Vegan ingredients are generally used for haircare & scalp-based cosmetics.



#### Examples of vegan ingredients observed in the review of products



#### **E.L.F. Cosmetics Under Eye Powder**

With affordable prices, E.L.F. Cosmetics, is an international cosmetics brand with products that are 100% cruelty-free, and in support of PETA's no fur campaign. It has more than 300 products that include bath products, skincare products, mineral-based makeup, and professional tools.

E.L.F.'s Correct and Set Under Eye Powder is one of the products which is cruelty-free, paraben-free and 100% vegan as the website claims. Enriched with vitamins C & E to help nourish and condition the skin, it instantly brightens the under eye area while camouflaging fine lines, dark circles, and imperfections.





Address: Oakland, California Website: <u>https://www.elfcosmetics.com</u> Contact: <u>elfcare@elfcosmetics.com</u>

#### **References:**

1. <u>https://www.elfcosmetics.com/correct-and-set-under-</u> eye-powder/200036.html?dwvar\_200036\_color=Peach &cgid=eyes-eye-concealer#start=7

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## **Beauty Kitchen Cleansing Sponge**

#### BEAUTY KITCHEN EFFECTIVE-NATURAL-SUSTAINABLE

Beauty Kitchen offers a range of vegan cosmetic products. The company emphasizes natural ingredients and sustainable packaging. Their mission is "to create the most effective, natural and sustainable beauty products in the world."

The Abyssinian Oil Facial Cleansing Konjac Sponge is a Beauty Kitchen product made from 100% natural and compostable ingredients.

The Konjac Sponge is made from pure edible plant roots, and cleanses and gently exfoliates skin to leave it clean, soft and radiant.



Address: United Kingdom

Website: https://beautykitchen.co.uk

Contact: hello@beautykitchen.co.uk

#### **References:**

1. <u>https://beautykitchen.co.uk/collections/vegan/product</u> <u>s/abvssinian-oil-facial-cleansing-sponge</u>



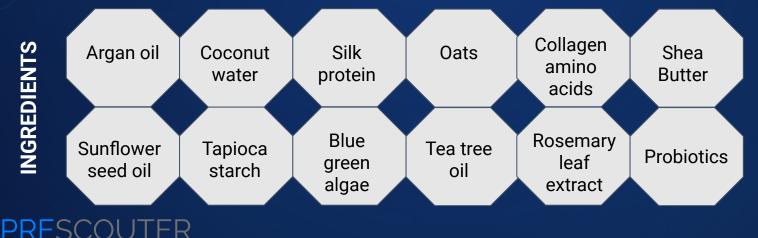
## **Cruelty-Free Ingredients**

"Cruelty-free" refers to products which involve no form of animal testing at any point in its creation.

It is easy to get confused between *cruelty-free* and *vegan* products. Vegan does not always mean cruelty free. The main difference between these is cruelty-free refers to the products developed without any tests on animals, while vegan refers to the products that do not include any animal-derived ingredients.



#### Examples of cruelty-free ingredients observed in the review of products



#### **Urban Decay Foundations**

Urban Decay, an American cosmetics brand, is a subsidiary of French cosmetics company L'Oréal. This cosmetic brand is known for its product lines for eyes, lips and face. Its target market is younger women. It is 100% cruelty-free and also has a large section of vegan products.

Urban Decay offers a range of products, including foundations of ~50 shades, covering a variety of skin tones and colors. The products are waterproof, longwear, and provide a buildable medium coverage with a real-skin matte finish that lasts up to 24 hours.





Address: Newport Beach, California, USA

Website: https://www.urbandecay.com/

Contact: 1-800-784-8722

#### **References:**

- 1. <u>https://www.urbandecay.com/on/demandware.store/</u> <u>Sites-urbandecay-us-Site/default/Product-Variation?pi</u> d=ud954&dwvar\_ud954\_color=40NN
- 2. https://www.urbandecay.com/shop/featured/vegan

### **Medik8 Intelligent Retinol**

# Medik8

Medik8 has a range of products for skincare and body care with recyclable packaging and reduced plastic use. They are also a cruelty-free and vegan friendly brand that boasts of being an anti-ageing and natural brand. With a reduced environmental footprint, reduced plastic consumption, 100% microbead-free, Medik8 claims its products are paraben-free, alcohol-free, cruelty-free, vegan friendly and doesn't contain phthalates.

Its key ingredients are retinol and vitamin E. It is available in 3 different varieties and claims to be a supercharged formula, boosted with hydrating squalane and retinol-enhancing climbazole hydrated complexion, without clogging pores.

Address: 30 Centennial Park, Elstree, Herts. WD6 3SZ, UK				
Website: https://www.medik8.com/eco.html				
Contact: hello@medik8.com				



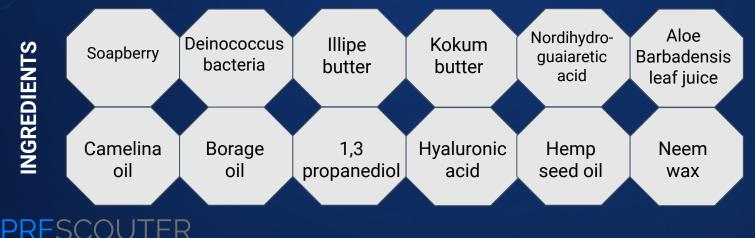
#### **References:**

- 1. <u>https://www.medik8.com/ingredient-glossary.html#sg</u> ualane
- 2. <u>https://www.medik8.com/ingredient-glossary.html#cli</u> <u>mbazole</u>

## **Biobased Ingredients**

The term "biobased" refers to products that are derived from plants and other renewable agricultural, marine, and forestry materials. They can provide an alternative to conventional petroleum derived products. Biobased products can include different categories such as lubricants, detergents, inks, fertilizers, and bioplastics, although, they do not include food, feed, or fuel.





#### Examples of biobased ingredients observed in the review of products

### **Deinove/Univar Phyt-N-Resist**



DEINOVE is a French biotechnology company that aims to meet the challenges of antibiotic resistance, while developing a sustainable production model for the nutrition and cosmetics industries

They have produced several "Bioactives", which are active ingredients of natural origin, from their unique bacterial biodiversity bank. In cosmetics, DEINOVE developed and markets PHYT-N-RESIST®, an anti-aging active ingredient based on pure phytoene. This is a carotenoid with a strong anti-oxidant and healing effect, which is also completely colorless.



#### Phyt-N-Resist The first pure phytoene

AN INNOVATION BY THE BIOTECH PLATFORM DEDICATED TO THE GENIUS OF EXTREMOPHILE DEINOCOCCUS

#### Address: Grabels, France

Website: https://www.deinove.com

**Contact:** +33 (0)4 48 19 01 00

#### **References:**

1. https://www.deinove.com/en/deinococcus-way

## **Biossance Squalane Oil**

# BIOSSANCE".

Biossance is a biotechnology company that creates skincare that is effective and safe without harming the environment or animals. Biossance produces sustainably produced squalane as the foundation of their products. It is made from 100% plant-derived, renewable sugarcane. It weightlessly hydrates and locks in moisture for a soft, smooth and healthy-looking glow.

Squalane is a plant derived analog of Squalene—a naturally derived emollient that has been previously harvested from sharks (unethical) and is now produced from olives (unstable).



Address: Emeryville, CA, USA

Website: https://biossance.com

Contact: 1-844-688-5885 / customerservice@biossance.com

#### **References:**

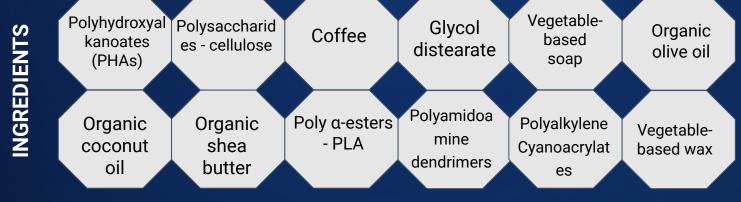
1. https://biossance.com/pages/ingredients

# **Biodegradable Ingredients**

Biodegradation is a chemical process in which materials are metabolized into water, carbon dioxide, and biomass with the help of microorganisms. The process depends on environmental conditions (e.g. temperature, humidity) and on the material itself. To claim a product's biodegradability, the ambient conditions have to be specified and a timeframe for biodegradation must be set in order to make claims measurable and comparable. For this report, biodegradable can also include compostable products and ingredients. Composting is the biological decomposition and stabilization of organic substrates, under conditions that allow development of thermophilic temperatures as a result of biologically produced heat, to produce a final product that is stable, free of pathogens and plant seeds, and can be beneficially applied to land.



#### Examples of biodegradable ingredients observed in the review of products



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#### **Unicorn Skin Cosmetics Glitter Products**



UNICORN SKIN makes a highly concentrated glitter gel for hair, body, beard & face. The products are an artisanal blend of biodegradable cosmetic grade glitter with all natural aloe vera and vitamin E based gel.

The guilt-free glitter products are made from a plant-based film (cellulose) that is derived from the fibers of eucalyptus trees, one of the most widely available and fastest growing trees on the planet.

It is certified marine & waste water compostable, meaning it is 100% safe for the environment and the oceans. The product is also vegan friendly, and no animal testing was involved in the development & production process.

Address: Brooklyn, NY, USA

Website: https://unicornskincosmetics.com/

Contact: Contact form



#### Avalon Organics® Shampoos & Conditioners

Avalon Organics® is focused on producing various cosmetic and personal care products from the Earth. They combine centuries of rich botanical study with modern science to thoughtfully create products from nature's resources.

Avalon Organics® formulates effective plant-based shampoos and conditioners with organic botanicals and essential oils. The products are biodegradable, gentle, safe for the hair, and are created without the use of harsh preservatives or hair-stripping cleansers.

#### AVALON ORGANICS<sup>®</sup>



Address: New Hyde Park, NY, USA

Website: https://www.avalonorganics.com/en/

Contact: 1-800-227-5120 / Contact Form

## **Fair Trade Ingredients**

Fair Trade certification is a way of guaranteeing that both buyers and sellers stick to the principles of Fair Trade. Fair trade is an institutional arrangement designed to help producers in developing countries achieve better trading conditions. Members of the fair trade movement advocate the payment of higher prices to exporters, as well as improved social and environmental standards.





#### Examples of fair trade ingredients observed in the review of products

## **Odylique Natural mineral makeup**



Odylique makes skincare products from natural ingredients to suit allergy-prone skin types. They utilize herbal medicine and aromatherapy to create effective formulations, based only on organic herbs, plant oils and natural active ingredients that are compatible with the most sensitive skin.

Their Face Mask line is certified to both organic and Fairtrade standards. They also have a natural mineral make-up range in which the lipsticks and eyeliners are made with Fairtrade certified organic shea butter, as well as, Natural Sunscreen approved by both the Fairtrade Foundation and the Soil Association (a UK-based organic certifier).

Address: Suffolk, UK

Website: https://www.odyligue.co.uk/

Contact: info@odylique.co.uk; 01638 491022



### Shea Moisture Shampoo, Conditioner and Body Wash

Shea Moisture is a personal care company, which focuses on shampoo, conditioner and body wash. Their hair care and skincare products are sustainably-produced and contain certified organic, natural and fairtrade ingredients. They are pioneering fair trade through Community Commerce at home (in the US) and abroad. 10% of SheaMoisture Community Commerce purchases are invested in efforts that grow women-owned and led businesses locally and around the world. In Ghana, proceeds are developing important community infrastructures that boost production capacity and quality in their northern Ghana Shea Butter cooperatives. Shea Noisture





Address: Amityville, NY, USA

Website: https://www.sheamoisture.com

Contact: +1 (631) 842-8800

References: Reference 1

# **Potential Next Steps**

Торіс	Question	Report		
Near-Term Developments from Industry and Start-ups	What ideas/products are currently being planned from other (specific) companies?	Intelligence Brief 2		
Innovations from Academia	What innovations from the academic sector may be leveraged in order to thrive in this space?	Intelligence Brief 3		
Deep Dive into Key Tech for Innovation Strategy	For the technologies of interest identified, what are the pros and cons relative to the desired point of market entry?	Intelligence Brief 4		
	Data Analysis and Final Recommendations for Recap Report			



### **Next Steps**

#### THESE ARE SOME POSSIBILITIES THAT PRESCOUTER CAN OFFER FOR CONTINUATION OF OUR RELATIONSHIP:



For any requests, we welcome your additional questions and custom building a solution for you.

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## **About the Authors**

**Daniel Morales, PhD I Technical Director of CPG** 

PreScouter

#### **Professional Summary:**

Daniel is one of PreScouter's Project Architects. He specializes in the consumer goods sector. Daniel received his PhD in Chemical Engineering from North Carolina State University in Raleigh. His dissertation research focused developing stimuli-responsive polymer networks for micro-robotics applications. After his graduate studies, he completed post-doctoral work at the LPCNO Lab in INSA Toulouse, France where he focused on incorporating microfluidics with nanoparticle assembly techniques to develop multi-parametric sensors. In addition, Daniel has industrial experience in pharma manufacturing and polymer processing. Daniel joined PreScouter as a Project Architect after two years as a Global Scholar.



## **About the Authors**

Ezinne Achinivu, PhD I Technical Project Manager

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#### **Professional Summary:**

My research focuses on advancing green engineering and green materials, especially regarding to new production methods for a sustainable energy infrastructure. For my PhD thesis, I developed a sustainable process for extracting lignin (a biopolymer) from lignocellulosic biomass using protic ionic liquids (PILs) in order to improve access to the carbohydrates (cellulose, hemicellulose) for biofuel production-(cellulosic ethanol). For my postdoctoral research I am looking into applications for biopolymers (cellulose, lignin, chitin etc) as biomaterials/biosorbents by creating bio-composite networks with other polymers.

## **About the Authors**

Mallika Priya, PhD I Program Coordinator, MGH, Boston

PreScouter

#### **Professional Summary:**

A business-minded Ph.D. with a problem-solving attitude, analytical thinker, and relationship builder. She received her Ph.D. in Life Sciences from School Of Life Sciences, Manipal University, India. After her Ph.D. (Diagnostic Oncology- Breast Cancer), she served as Publications Manager, CACTUS Communications and moved up the career ladder as Project Manager- Journal Consultancy Services in a span of 2 years.

Currently she is working as a Program Coordinator, Massachusetts General Hospital, Boston MA and is a point of contact for ~20 research lab members for lab activities and a third eye for the PI. She recently headed the planning and organization of <u>17th International Photodynamic Association World Congress</u> attended by ~450 participants from 35 countries.

She freelances for PreScouter as an Advanced Degree Researcher in her spare time.



#### **About PreScouter**

#### PRESCOUTER PROVIDES CUSTOMIZED RESEARCH AND ANALYSIS

PreScouter helps clients gain competitive advantage by providing customized global research. We act as an extension to your in-house research and business data teams in order to provide you with a holistic view of trends, technologies, and markets.

Our model leverages a network of 3,000+ advanced degree researchers at tier 1 institutions across the globe to tap into information from small businesses, national labs, markets, universities, patents, startups, and entrepreneurs.

#### **CLIENTS RELY ON US FOR:**

**Innovation Discovery:** PreScouter provides clients with a constant flow of high-value opportunities and ideas by keeping you up to date on new and emerging technologies and businesses.

**Privileged Information:** PreScouter interviews innovators to uncover emerging trends and non-public information.

**Customized Insights:** PreScouter finds and makes sense of technology and market information in order to help you make informed decisions.



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