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Forward Thinking: Haste Makes Waste

Consumers' growing concerns, sustainably sourced ingredients, water reduction, green packaging, recycling and upcycling are all driving sustainable innovation in consumer packaged goods.

The world does not have unlimited natural resources, and sustainability continues to be a hot topic among all industries including the fragrance and flavor industry. In August 2017, Trendincite's *Perfumer & Flavorist* "A Sustainable Future" article, examined sustainable initiatives in packaging, technology and sustainably sourced ingredients. A year earlier, Trendincite's "Forward Thinking: Waste Not, Want Not" October 2016 *Perfumer & Flavorist* article, addressed food waste management and reduction. Trendincite's first sustainability article "Forward Thinking: Sustain to Gain," which appeared in the July 2012 issue of *Perfumer & Flavorist* magazine, explored sustainability, eco-friendly packaging and better business practices.

All of these issues discussed over the last seven years are still relevant. In fact, consumers' interest and demand for sustainable products and services is a global phenomenon with no signs of slowing down. Sustainability is not a fad or a trend. The growing population, climate change, plastic pollution, waste management, transparency and ethical business practices are many of today's concerns for individuals, businesses, legislation and non-government organizations. Consumers' growing concerns, sustainably sourced ingredients, water reduction, green packaging, recycling and upcycling are all driving sustainable innovation in consumer packaged goods.

Consumers Care Where Their Dollar Goes

Today's consumers have high expectations of brands and their business practices. Consumers want to purchase products that minimize their impact on the environment. Ethical initiatives, transparency, sustainability and corporate social responsibility (CSR) are a few factors consumers are investigating when making product purchase decisions.

Mintel's recent research^a found that consumers expect companies and brands to have ethical and CSR initiatives. Nearly all (97%) consumers agree that it is important to them that a company acts morally/ethically, up from three in four (76%) who said the same in 2012. Consumer support for CSR initiatives continues to grow, 87% of consumers agree that companies should always do the right thing, even if it is not required by law, and nearly two-thirds (65%) say they would stop buying from a brand if it has irresponsible practices. Furthermore, consumers believe companies with CSR initiatives have higher quality products (82%), are changing things for the better (73%) and genuinely care (65%). Adult iGens are the most likely generation to say that they often or always make purchases based on a brand's reputation for ethical business practices (59% vs. 46% overall). In addition to impacting their purchasing decisions, 62% of adult iGens go so far as to say that a product from a socially responsible company is worth paying more for, compared to 51% of consumers overall. Although fewer than one in five (16%) Americans say they have donated to environmental causes in the last year, three in five (59%) expect companies to have environmentally friendly initiatives.

At the end of 2018, Mintel^b announced "Sub-Zero Waste" as the trend that will impact global beauty and personal care markets over the next five

years. Consumers' growing concerns for sustainable products is on the rise and will only increase over time. Mintel's data^c shows that 44% of U.S. natural/organic personal care consumers, who buy a mix of mainstream and natural/organic brands, say they live sustainably. The report also found that 54% of Brazilians who are potential buyers of green/ethical products say they purchase sustainable/ environmentally friendly goods because they don't like to waste; while 74% of beauty and personal care consumers in Spain are concerned that the ingredients used in natural products are not sustainable; whereas 58% of Chinese Mintropolitans^d agree they are willing to pay more for ethical brands; and 24% of Indian consumers are motivated/would be motivated to live a more 'natural' lifestyle to support environmentally-conscious businesses.

Similar research by Nielsen^e found that nearly half (48%) of US consumers say they would definitely or probably change their consumption habits to reduce their impact on the environment. And these consumers are putting their dollars where

^c <https://downloads.mintel.com/private/kgyOP/files/730875/>

^d Mintropolitans are broadly defined by Mintel as those who represent a significant, sophisticated consuming group (aged 20-49) who pursue quality of life rather than just wealth, are well educated, and are the potential trendsetters

^e <https://www.nielsen.com/us/en/insights/news/2018/was-2018-the-year-of-the-influential-sustainable-consumer.html>



Love Beauty and Planet deodorants are made of plant-based deodorizers and each scent is infused with an ethically sourced oil or extract that are designed to offer 24-hour odor protection. The deodorant canisters are made from 43% recycled plastic and the packaging is recyclable. Courtesy of Unilever.

^a <https://news.mintel.com/2174-5ZCXJ-8FM256DHB7/cr.aspx>

^b <https://news.mintel.com/2174-60FGW-8FM256DHB7/cr.aspx>

their values are, spending \$128.5 billion on sustainable fast-moving consumer goods (FMCG) products this year. By 2021, Nielsen expects these sustainably minded shoppers to spend up to \$150 billion on sustainable FMCG goods, an increase of \$14 billion - \$22 billion. The data revealed that generations have differing opinions for purchase intent. Millennials are twice as likely (75% vs. 34%) as Baby Boomers to say they are definitely or probably changing their habits to reduce their impact on the environment. They are also more willing to pay more for products that contain environmentally friendly or sustainable ingredients (90% vs. 61%), organic/natural ingredients (86% vs. 59%), or products that have social responsibility claims (80% vs. 48%).

Nielsen's "What's Sustainability Got to Do With It: Linking Sustainability Claims to Sales" report^f, echoes these consumer sentiments and links sustainability claims to purchase decisions. The report compared the performance of sustainability claims in the United States across three product categories – chocolate, coffee and bath products from March 2017 to March 2018. The data showed that within all three categories, dollar sales of items with the specific claims studied grew twice as fast as the weighted average dollar growth of the three categories combined. For example, the overall chocolate category sales grew 5%, while sustainable chocolate sales grew 16%, driven by environmental claims,

^f <https://www.nielsen.com/us/en/insights/news/2018/sustainability-sells-linking-sustainability-claims-to-sales.html>

absence of artificial ingredients and fair trade.

Similarly, the overall bath products category sales grew 1%, while sustainable bath product sales grew 14%, driven by environmental claims and the presence of minerals, organic ingredients and essential oils.¹ The report stated: "Overall, we can conclude that bath product shoppers are paying attention to product claims when making their purchasing decisions, with an eye toward sustainability, among other factors."

Ingredient Focus, Forward Thinking Beauty

In today's experiential economy, brands know consumers have a choice. Ingredients and transparency are an integral aspect of sustainability. Several companies are exploring ethically and sustainably sourced ingredients with compelling marketing stories to support the brand and empower consumers. Consumers' experiences are enriched knowing that the products they use are part of a positive change.

In August 2018, Unilever added a line of deodorants to its **Love Beauty and Planet** collection, which are made of plant-based deodorizers and designed to offer 24-hour odor protection. According to the brand, "each scent is infused with an ethically sourced oil or extract and the deodorant canisters are made from 43% recycled plastic and the packaging is recyclable." Additionally, as part of Unilever's Sustainable Living Plan, the brand will disclose its annual carbon footprint while continuing towards the goal to reduce its



Henkel's Nature Box is a new vegan hair and body care range with 22 SKUs. The line highlights cold-pressed oils from coconuts, avocados, apricots, almonds and macadamia nuts. Courtesy of Henkel.



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Lush's "Naked" store in Milan, Italy only sells products without packaging to reduce plastic waste. Courtesy of Lush.

carbon footprint by 20% by 2020. Furthermore, to be accountable for its carbon emissions, Love Beauty and Planet taxes itself \$40 per carbon ton of greenhouse gas emitted during the production and distribution of its products, which will be used to support The Recycling Partnership in their effort to improve recycling programs across the United States that measurably reduce greenhouse gas emissions and landfill waste.

Tom's of Maine has a stewardship model for natural, sustainable and responsible ingredients used in its deodorants and does not formulate with petroleum-derived, artificial fragrances, preservatives, parabens or silicones. Recently, Tom's of Maine reformulated the brand's deodorants and replaced the lichen with hops when they learned that lichen was not being harvested in a sustainable way.

Herbal Essences by Procter & Gamble has formulated two new **Bio:Renew** sulfate-free shampoos - **Honey & Vitamin B Sulfate-Free Shampoo** and **Birch Bark Extract Sulfate-Free Shampoo**, which meet the Environmental Working Group's (EWG) stamp of approval for verification. The EWG's Verification is an outside team of scientists that review detailed information about the brand's product composition, safety testing and quality control to inform consumers about the chemicals

used in the products. Henkel debuted **Nature Box**, a new brand that "combines effective beauty care with cold-pressed oils and certain sustainably-sourced ingredients." The vegan range consists of 22 SKUs including shampoo, conditioner, hair treatments, body wash, body lotion, body butter and liquid hand soap. The line highlights cold-pressed oils from coconuts, avocados, apricots, almonds and macadamia nuts and many of the products are created without sulfates, silicones, parabens or artificial colorants.

Bulldog, the British male grooming skin care brand, is making strides as an ethical, green brand. The company introduced the **Original Shower Gel Refill Box**, which is made from FSC certified recycled cardboard, contains the equivalent of 25 bottles of product and reduces plastic waste by 85%. It recently launched a new bamboo razor with a replaceable handle. The packaging is made from fully recycled paper with environmentally friendly inks. In addition, Bulldog has developed plastic derived from Brazilian sugarcane for its plastic tubes.

Water Reduction

Although the United States has an estimated 4.3% of the world's water^g, water resources are not

^g <https://www.watertcalculator.org/footprints/how-united-states-uses-water/>

WOOD VANILLIN

Vanillin is the world's most popular flavour for use in food and fragrances.
Wood vanillin is naturally occurring within the tree, embedded
in the tree structure.



During the biorefinery process the vanillin within the tree is separated, collected, purified to more than 99,9%, crystalized & packed in 25 kilo cartons. Wood vanillin is defined as a Derived Natural ingredient for cosmetics and personal care according to the International Standard ISO 16128-1.

Vanillin widely occurs in plants and is one of nature's protection systems. This protection comes in the form of inherent anti-microbial properties which take effect when the trees or plants are attacked by fungi, yeast, bacteria or insects. As such, vanillin acts as a preservative when used in food, fragrance and cosmetic formulations.

Borregaard has produced wood vanillin since 1962. Today, Borregaard is the world's most advanced biorefinery, making several hundred commercial bio-based products from trees.

Wood vanillin is sustainable and gives a 90% reduction in CO₂ emissions compared to guaiacol vanillin synthesized from crude oil.

Hence the climate impact of Borregaard's wood vanillin is much smaller than that of oil-derived vanillin.



Wood Vanillin



Oil-based Vanillin

Oil-derived vanillin has a climate impact which is 29 times greater than wood vanillin, irrespective of where it is produced.

There is a limited amount of vanilla beans produced globally, and there is an increasing market focus on replacing synthetic ingredients with bio-based, plant-based and sustainable ingredients.

"Borregaard supplies the market with high grade bio-based vanillin."



Natural vanilla

- Key selling points:
- Labelled as "natural"
 - Unique taste profile



Bio-based vanillin

- Key selling points:
- Natural raw material
 - Sustainable
 - Creamy taste profile



Oil-based vanillin

- Key selling points:
- Price



unlimited. Water is used to make energy, produce food and consumer packaged goods. The use of water for bathing using multiple soap-based products has a very high impact on the environment. Water efficiency and conservation is an important factor in personal care. For example, L'Oréal has committed to a 60% reduction in water consumption per finished product by 2020 (from a 2005 baseline), while Unilever is committing to halve the water associated with the consumer use of its products by 2020 (against a baseline of 2010).²

Lush is a pioneer in waterless beauty products from solid shampoos to bath bombs to solid toothpaste and solid mouthwash tabs. According to Lush, the first-ever solid shampoo bar saves nearly six million plastic bottles yearly.³ To reduce plastic waste, in June 2018, **Lush** opened the World's First "Naked" store in Milan, Italy, which sells only products without packaging.

In November 2018, L'Oréal partnered with tech company GJosa to develop a low water use shampoo that requires five times less water to rinse it off. GJosa developed a low-flow showerhead and L'Oréal designed a rinse shampoo to work with the showerhead that only requires 1.5 liters of water versus 8 liters that are required for a conventional shampoo. The more efficient rinse reduces the water used and energy consumption by 70%.⁴ As the demand for sustainable beauty products continues, expect to see more dry, solid applications and waterless beauty products.

Household Products Join the Conversation

Cleaning products are beginning to join the sustainability conversation and brands are creating better, safer formulas and environmentally friendly packaging in the household segment.

Seventh Generation, the Unilever-owned company, is rolling out a line of professional cleaning products that have similar formulations as the ones sold to consumers but, to meet industry standards, are packaged differently. Diamond Wipes has acquired Ode to Clean, a wipes brand, which uses only plant starch in the product's formula and is manufactured using solar- and wind-powered manufacturing. **Diamond Wipes** launched a new version of **Ode to Clean** wipes featuring a biodegradable substrate and "improved formulation of Bioperoxide," a non-toxic "enzyme that produces a pure form of hydrogen peroxide." Procter & Gamble has unveiled a new Eco-Box for its Tide's laundry detergent sold through e-commerce. The **Tide Eco-Box** contains an ultra-concentrated formula



Diageo launched a range of edible flavored straws in a variety of flavors including lime, lemon, strawberry and chocolate to complement its pre-mixed canned Ready-To-Drink cocktails. Courtesy of Diageo.

packaged in a sealed bag. Users peel a perforated cardboard flap for the dosing cup and no-drip twist tap. A pull-out stand is included for users to raise the height of the box for the cup to fit beneath the tap for an easier dosing experience.

The Straw that Broke the Camel's Back

Similar to the ban on plastic bags, in an effort to mitigate plastic waste, there has been a global movement to ban plastic straws. In September 2018, California signed a bill to ban plastic straws from dine-in restaurants, which went into effect in 2019. In July 2018, Seattle banned single-use plastic straws and utensils in food service. Across the pond, the UK and European Union Parliament have proposals for a ban on straws and other single-use plastics. In response, consumer goods manufacturers have gotten creative and are launching sustainable, edible flavored straws. For example, in the UK, Diageo launched a range of edible flavored straws to complement its pre-mixed canned Ready-To-Drink cocktails. The **Gordon's Gin & Schweppes Tonic** and **Smirnoff & Cranberry** come with lime flavored straws, while **Captain Morgan Spiced Rum & Cola** features a lemon straw. A chocolate straw accompanies **Baileys & Iced Coffee Latte**, while **Pimm's & Lemonade** has a strawberry flavored straw. Pernod Ricard announced a collaboration with Loliware, the edible plastics company, which will produce the

"straw of the future" made from hypercompostable and marine-degradable materials.

Straws are just a small piece of the world's plastic problem. According to Dianna Cohen, Plastic Pollution Coalition CEO, "We look at straws as one of the gateway issues to help people start thinking about the global plastic pollution problem."

Alternatives to Plastic Packaging in the Beverage Sector

Alternatives to plastic packaging are ongoing and there are a variety of new products in the marketplace to address plastic pollution. In August 2018, PepsiCo announced it would acquire Israeli-born SodaStream International and in December 2018 it completed the acquisition. In the United States, **SodaStream International** has experienced a 30% year-over-year growth. This growth is contributed to consumers having an alternative to disposable bottles and cans and cutting back on single-use products. **Terra Water** by EB Beverage launched a 100% biodegradable and compostable bottled water made from plant-based materials with labels made from

vegetable oil. **Clipper Teas**, one of the UK's biggest tea brands, developed a plastic-free, unbleached and non-genetically modified tea bag designed specifically to help cut down on plastic pollution. The tea bags are made using a blend of abaca, which is made from a species of banana plant, and a biopolymer made from a non-genetically modified plant material known as PLA.

Instead of using plastic, **Saltwater Brewery** in Delray Beach, FL designed edible six-pack rings derived from barley and wheat byproducts of the brewing process. The edible rings are intended for marine animal consumption and are completely biodegradable and compostable. Similarly, Denmark-based **Carlsberg** developed a new type of glue to hold its six-packs together. The "snap packs" will reduce the brand's plastic waste by 76%, which is the equivalent of 60 million plastic bags a year. In collaboration with the environmental organization Parley for the Oceans, in Tulum, Quintana Roo, **Corona** brewer Grupo Modelo is piloting a replacement for its plastic six-pack rings with a product made from vegetable waste left by food and beverage

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processing. Grupo Modelo intends to eliminate the use of plastic in seven years.

Recycling Push

Recycling is an important aspect of reducing plastic waste. However, many of the plastics used in consumer packaged goods are difficult to recycle and are often comprised of mixed materials. **TerraCycle** is a global leader in recycling hard-to-recycle materials. Recently many consumer packaged goods companies have partnered with TerraCycle to reach a wider audience and propel consumers to actively participate in reducing plastic waste from going into landfills.

L'Occitane has partnered with TerraCycle, which will provide a collection and recycling service for empty beauty packaging in all of its L'Occitane stores in the UK. The service is already available in L'Occitane stores in the United States and France. The new initiative allows customers to bring in empties from any brand in return for 10% off any L'Occitane product in-store. According to Recycling Bins, Brits use up to 275,000 tonnes of plastic each year with up to 80% of plastic waste going to UK landfills that can be recycled.⁵ Also in the UK, **Walkers** initiated a nationwide recycling program with TerraCycle for the brand's Crisp (potato chip) packets. This is part of Walkers' commitment to achieve 100% recyclable, compostable or biodegradable packaging by 2025. Currently, compostable packaging pilots are being tested in the United

States, India and Chile. Consumers are encouraged to drop off their packets at one of hundreds of collection points or via a free post box address or envelope directly to TerraCycle. The packets will be cleaned, shredded and turned into small plastic pellets that will be converted into plastic items such as benches and fence posts. Pet care is also part of the equation and TerraCycle has joined forces with Mars Petcare and Royal Canin. In Europe, **Mars Petcare** and TerraCycle unveiled **The Pet Food Recycling Program**. Shoppers can return plastic pouches and bags from **Whiskas** and **James Well** at designated drop-off collection points across the country or mail in via free post. Like the other brands, the returned packages will be converted into plastic items and the food residue will be composted. **Royal Canin** has made its entire product line nationally recyclable through its collaboration with TerraCycle. The **Royal Canin Recycling Program** enables consumers to sign up and return the used product with a prepaid shipping label. For every shipment of Royal Canin packaging waste sent to TerraCycle, consumers will earn points that can be used for charity gifts or converted to cash and donated to the nonprofit, school or charitable organization of their choice.

Upcycled Byproducts

According to the U.S. Department of Agriculture⁶, it is estimated that approximately 30 to 40% of the

⁶ <https://www.usda.gov/oce/foodwaste/sources.htm>



Yappah protein crisps are made from "rescued and upcycled vegetables and grain-based ingredients" and come in five flavors: Chicken IPA White Cheddar, Chicken Sunshine Shandy Beer, Chicken Carrot Curry, Chicken Michelada and Chicken Celery Mojo. Courtesy of Tyson Foods.

food supply in the United States is wasted. The restaurant industry generates about 11.4 million tons of food waste annually at a cost of about \$25 billion per year, according to a report from San Francisco-based non-profit ReFEDⁱ. Byproducts created from food waste have been trending and variety of unique initiatives and new products have been introduced. However, the words “waste” and “garbage” have negative associations. Drexel University’s study “From food waste to value-added surplus products (VASP): Consumer acceptance of a novel food product category,^j” found that the word “upcycled,” was most preferred by consumers, who overall want to buy foods revolved around sustainability.

Yappah, a Tyson Foods’ brand, introduced, protein crisps made from “rescued and upcycled vegetables and grain-based ingredients.” Yappah’s flavors are made with Tyson chicken breast trim that is blended with rescued vegetable purée or spent grain from Molson Coors Brewing Co. There are four flavors: **Chicken Carrot Curry, Chicken Celery Mojo, Chicken IPA White Cheddar** and **Chicken Sunshine Shandy Beer** and the chips are packaged in a recyclable aluminum can. In September 2018, Yappah started a Kickstarter campaign for a fifth flavor, **Chicken Michelada**. **Rise Products** supported by Food-X accelerator, converts spent grain from breweries into flour for baking. According to Rise Products, 42 million tons of spent grains are discarded yearly. The patent-pending process can also be applied to other byproducts, including grape pomace from wineries, coffee waste, okara from soy milk, and fruit skins and pulp from juice. The current line includes **Super Flour** made from spent IPA or Pilsners grain, which has “12x fiber, 2x protein and 1/3 of the carbohydrates compared to all-purpose flour,” **Dark Edition** made from Stout or Porter grain, **Upcycled Brownie Mix** and **Decadent** ready-to-eat brownies.

Bartenders and mixologists have been experimenting with repurposing food scraps and food waste into creative cocktails. According to Kimpton Hotels & Restaurants’ fifth annual Culinary + Cocktail Trend Forecast^k, 88% of bartenders consider sustainability whenever they design a cocktail for their menu and are embracing new approaches to sustainability including edible garnishes, on-site beehives, room temperature cocktails and bar and kitchen menus featuring fewer ingredients that are incorporated into multiple items. In addition, sustainability is top of mind as chefs continue

to incorporate sustainable practices into their restaurants with zero waste dinners, single origin sourcing, onsite composting and greenhouses. Jessica Weinstein, corporate beverage director for the Jamie Leeds Washington, D.C.’s Restaurant Group that includes Hank’s Cocktail Bar, Hank’s Pasta Bar and Hank’s Oyster Bar, was inspired by a dish of leftover burrata and roasted red peppers. Weinstein examined the food waste and thought it smelled like a Negroni and she crafted a signature cocktail using the peppers. Taking it a step further, Weinstein created a dedicated section on the cocktail menu called “Trash Humans,” and each cocktail uses a repurposed food. The Specialty Food Association Trendspotter Panel at the 64th Annual Summer Fancy Food Show, believe this trend will continue “As consumers become more aware of how much food is wasted in the U.S.,

Together it is our responsibility collectively to be part of the change and have a positive impact on the environment today and for future generations.

upcycled products made of ingredients and scraps that would have otherwise been discarded, will hold bigger appeal.”

In addition to food waste, upcycling byproducts are happening in other industries as well. For example, Canadian company **Comet Bio** works with farmers and converts biomass (farm leftovers) into high quality, sustainable non-GMO dextrose and glucose syrups. According to Comet Bio, “The proprietary process integrates with traditional agricultural practices, improves the economics of farming, and allows farmers to use their entire harvest, leaving nothing to waste.” In India, over eight million tonnes of flowers are thrown into the Ganges river every year for religious purposes.⁶ This pollutes the Ganges, which provides drinking water for over 420 million people. In an effort to combat the floral waste, **Help Us Green** designed a “flower recycling,” program, which received a UN Climate Action Award. Women collect floral-waste daily

ⁱ https://www.refed.com/downloads/Restaurant_Guide_Web.pdf#page=6

^j <https://www.philabundance.org/wp-content/uploads/2018/03/VASP-DREXEL-RESEARCH.pdf>

^k <https://www.modernrestaurantmanagement.com/kimptons-top-culinary-and-cocktail-trends-for-2019-infographic/>

from temples and the waste is up-cycled to produce organic fertilizers, natural incense and biodegradable packaging material. To date, 11,060 metric tonnes of temple-waste has been flowercycled and 73 families now have stable incomes and have been able to increase their living standards. By 2021, Help Us Green plans to expand to Bangladesh and Nepal to support 5,100 women and recycle 51 tonnes of temple waste daily.

F&F Suppliers' Sustainable Efforts

Fragrance and flavor suppliers are aware of their impact on the environment and the importance of ethical business practices. Many are being recognized for their efforts. In December 2016, IFF was named to the Euronext Vigeo U.S. 50 index, an index that recognizes companies for exceptional environmental, social and governance (ESG) performance. In December 2018, IFF was named to the Euronext Vigeo World 120 index and is currently the only one in the F&F industry. In December 2018, Symrise was awarded "Germany's Most Sustainable Large Corporations 2019," by the German Sustainability Award. In 2012, Symrise won "Germany's Most Sustainable Initiatives" and was a finalist in 2016. In 2017, Firmenich received the DuPont Sustainability Award, making them the first company in the F&F industry to receive three DuPont Awards. With an A in Climate and Water, Symrise recorded top CDP rankings. In addition, Symrise achieved a score of 82/100 and was among the top 1% of gold-rated companies in the EcoVadis rating.

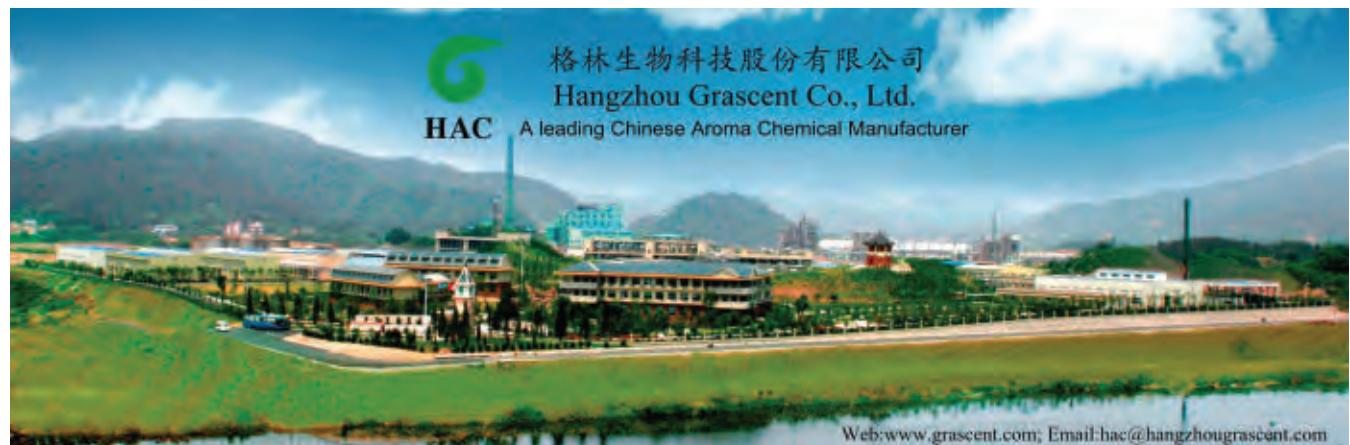
A Collective Solution

Sustainability is an enormous world issue that affects all aspects of our daily lives. Collectively, manufacturers and consumers are equally part of the problem and the solution. The world has limited

resources and we need to continue to be socially and environmentally conscious. For manufacturers, this includes ethical, sustainable sourcing, manufacturing and packaging as well as ongoing CSR initiatives. For consumers, this means changing consumption habits including the use of single-use plastics, water and recycling. Together it is our responsibility collectively to be part of the change and have a positive impact on the environment today and for future generations.

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