June 2025
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2025 FRAGRANCE LEADERS & NEWSMAKERS

Key players comment on the state of the fragrance industry and what innovations are still to come.

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FEMA 3134 Natural 2-Isobutyl Thiazole
FEMA 3555 Natural 2-Isopropyl-4-Methyl Thiazole
FEMA 3680 Natural 2-Ethyl-4-Methyl Thiazole

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Perfumer & Flavorist+ magazine
336 Gundersen Drive, Suite D
Carol Stream, IL 60188-2403 USA
fax: 1-630-653-2192 • e-mail: perfumer@allured.com

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EDITORIAL

Content Director	Emmanuel Henderson | 1-630-344-6020/ehenderson@allured.com
Associate Managing Editor	Emily Little | 1-630-344-6058/elittle@allured.com

ADVERTISING SALES

Group Publisher	Jeb Gleason-Allured | 1-630-344-6069/jallured@allured.com
New Business Development Manager	Jolly Patel | 1-630-344-6061/jpatel@allured.com
Advertising Production Manager	Kasia Smialkowski | 1-630-344-6025/ksmialkowski@allured.com
Advertising Production & Business Intelligence Specialist	Ethan Grisham | 1-630-344-6068/egrisham@allured.com

AUDIENCE DEVELOPMENT

Audience Development Manager	Sam Attebery | 1-630-344-6027/sattebery@allured.com
Customer Service	1-847-559-7557/customerservice@perfumerflavorist.com

DESIGN

Assistant Design Manager	James Fergus
Senior Graphic Designer	Hon Bannapradist

CORPORATE

Partner & CEO	George Fox
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E-mail: customerservice@perfumerflavorist.com
Address: *Perfumer & Flavorist+*, PO Box 3009, Northbrook, IL 60065-3009

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What I Learned About Fragrance Today Is …



This month I've had the joy of reading and editing all of our Fragrance Leaders & Newsmakers submissions.

I've officially been the editor of *Perfumer & Flavorist+* for a little over six months now, and in those six months I have learned so much about this industry. Everyone I have met has been so welcoming and helped me learn all of the little nuances that go into fragrance formulation.

I truly don't think I'll ever stop being impressed when I learn about a new technology or innovation. Maybe it's the chemist in me, but there's something so satisfying about seeing an experiment come to fruition. So when I read about a new extraction process that maintains higher yield of a plant's extract while maintaining its antioxidant compounds, I can't help but smile. There are so many professionals in the F&F community working to make sure our products are high-quality and safe, and their creativity and drive are admirable.

This month I've had the joy of reading and editing all of our Fragrance Leaders & Newsmakers submissions, and I can't help but feel so much hope and optimism for this industry. Every company that is featured in this issue has mentioned some form of hardship, whether it be geopolitical conflicts or price changes or supply chain shortages. But they all found a way to overcome these challenges so they could keep providing excellent service and new innovations. While our experts acknowledge that things are still uncertain in the industry, they are also optimistic about the next few years and excited about the next wave of innovation.

Next month will be our Flavor Leaders & Newsmakers, so stay tuned!





EMILY LITTLE
Associate Managing Editor
elittle@allured.com

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IFF Unveils Citrus Innovation Center in Florida

On April 9, 2025, IFF announced the opening of the Citrus Innovation Center, located in Lakeland, Fla., in partnership with Florida Polytechnic University.

The new center is a 30,000 square-foot facility that includes state-of-the-art capabilities in botanical research and a 360-degree digital immersion room. The center will also leverage LMR Naturals by IFF's expertise in natural ingredients, processing, analytics and product creation.

"Citrus is vital to our creations in scent and taste, with enormous potential for innovation across our businesses," said chief executive officer Erik Fyrwald. "The Citrus Innovation Center embodies our unwavering dedication to innovation and our commitment to creating enduring partnerships that help us bring leading solutions to our customers while doing more good for people and planet."



The Citrus Innovation Center will focus on applications in food and beverage, fine fragrance, body care, and fabric and home care.

According to the company's press release, the Citrus Innovation Center will focus on applications in food and beverage, fine fragrance, body care, fabric care and home care. The facility will support approximately 40 jobs with room for expansion in the future.

"The grand opening of IFF's Citrus Innovation Center on our campus marks a pivotal milestone for Florida Poly, launching a bold partnership that will drive pioneering research and create transformative opportunities for our students and faculty," said Dr. Devin Stephenson, president of Florida Polytechnic University. "This powerful collaboration will accelerate discovery and technological advancement in the flavor and fragrance industry, while marking the beginning of a research park that will fuel innovation and economic growth."

Eurofragance Welcomes Senior Perfumer Pelegrí Granel

Fragrance house Eurofragance announced the hire of Pelegrí Granel as a new senior perfumer. Granel will work with the company's home care perfumers.

Granel has an extensive background in fragrance creation. He is known as a "cross-category" perfumer, with expertise in both personal and home care. He previously served as senior perfumer at the Kao Corporation.

"I am very excited to be part of the Eurofragance team and to have the opportunity to enhance the home care category, a highly inspiring project that the company is really invested in," said Granel. "For me, in an industry that is constantly changing, it is essential to approach each project with a different narrative, from a creative perspective, with the ability to adapt and a special focus on intuition."

Chief fragrance development and innovation officer Dolors Costa added, "Pelegrí Granel brings extensive experience in the fragrance industry, which will be essential in strengthening our expertise in the home care category. With the addition of Pelegrí to the team, we take another step forward in our mission of providing exceptional fragrance solutions, while always ensuring the highest standards of quality and innovation."



Granel previously worked as a senior perfumer at the Kao Corporation.

From top: Courtesy of IFF; Eurofragance

Interparfums Inc Acquires Goutal Brand

On March 17, 2025, Interparfums, Inc. announced its acquisition of all worldwide intellectual property rights relating to Maison Goutal, held by Amorepacific Europe.

Maison Goutal was created by Annick Goutal in 1981 and is known for a wide range of perfume, bath and home fragrance lines. Further, the brand has marketed itself through a network of boutiques and in-store sales corners in France and abroad. The brand states that it uses high-quality raw materials in its formulations.

According to the acquisition agreement, Amorepacific Europe will continue to operate the Goutal brand under a license agreement for a set duration. Interparfums SA will then develop the brand from 2026 onwards with its licensee.

"The acquisition of the Goutal brand reflects our strategy of broadening our product offering to include high-end fragrances," said Jean Madar, chairman and chief executive officer of Interparfums. "This brand, known for its iconic lines such as L'Eau d'Hadrian and Petite Chérie, has substantial potential in this highly dynamic segment. Intent on safeguarding the legacy of the company her mother created and perpetuating the brand's values, Camille Goutal will remain involved in fragrance choices."

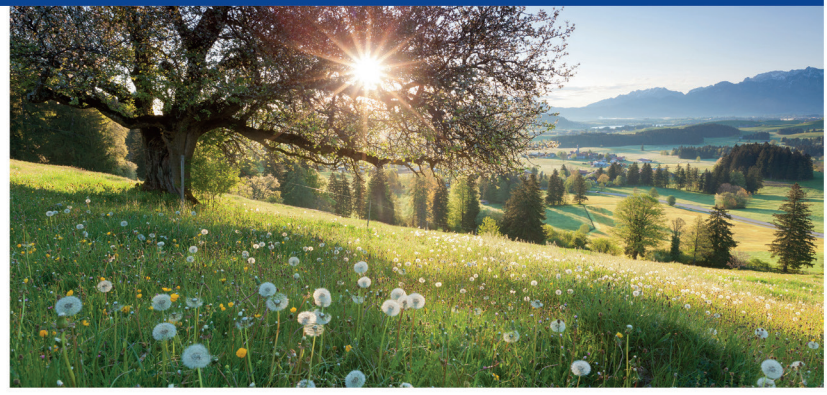


Camille Goutal, the founder's daughter, will remain involved in fragrance choices, according to the acquisition agreement.

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MANE Joins International Collaboration on Cosmetics Safety

On April 1, 2025, flavor and fragrance manufacturer MANE announced its partnership with the International Collaboration on Cosmetic Safety (ICCS). This partnership highlights MANE's work in developing innovative and ethical testing methods.

ICCS was formed in 2023 as a global initiative focused on the advancement of animal-free assessments in cosmetics. The organization includes several industry leaders in its membership, such as Coty, Edgewell and BASF.

"At MANE, the protection of animal welfare and the environment is not just a priority - it is a cornerstone of our identity," said MANE's vice president of global regulatory affairs and product safety Eric Angelini. "This unwavering commitment is reflected in our strict policy of not conducting animal tests on our flavor or fragrance compositions. Furthermore, no animal tests are conducted or commissioned for our manufactured ingredients, except where specifically required by national or regional regulations. Our proactive stance extends beyond compliance. We are determined pioneers in the search for alternative methods, investing in cutting-edge research and collaboration to drive the future of ethical testing."

Erin Hill, chief executive officer of ICCS, added, "By joining forces with ICCS, MANE reaffirms its commitment to developing and promoting non-animal safety approaches. Together, alongside our global network of ICCS members, we will continue driving progress toward a future free from animal testing."



Erin Hill, chief executive officer of ICCS, said, "By joining forces with ICCS, MANE reaffirms its commitment to developing and promoting non-animal safety approaches."

Prinova Appoints Richard McEvoy as President and CEO

On March 11, 2025, ingredient supplier Prinova announced the appointment of Richard McEvoy as its new president and chief executive officer, effective April 1. He will succeed Don Thorp, who will retire following a successful 42-year tenure leading the business.

McEvoy's career includes leadership roles at Unilever, JohnsonDiversey and Vantage Specialty Chemicals. Most recently, he serves as CEO of Voyant Beauty.

"We are thrilled to welcome Richard to Prinova," said Rob Elias, chief financial officer. "His strategic mindset, operational expertise and depth of experience will help us to drive innovation across the company's product and service portfolio."

McEvoy said, "I'm excited to join Prinova at such a pivotal time. The company has built a strong reputation for its commitment to excellence and innovation. I look forward to working with the talented team at Prinova and Nagase to build upon this success, seize new opportunities and deliver exceptional value for our customers and stakeholders."



Richard McEvoy's career includes leadership roles at Unilever, JohnsonDiversey, Vantage Specialty Chemicals, and Voyant Beauty.

From top: Image by ximich_natali at Adobe Stock; Courtesy of Prinova

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dsm-firmenich launches MaxirenEVO coagulant enzyme for cheese texture, yield, functionality

Flavor and fragrance manufacturer dsm-firmenich announced the launch of MaxirenEVO, a coagulant enzyme designed for cheese applications. The enzyme is produced using fermentation technology and targets alpha s-1 (as1) casein to deliver better texture and flavor development.

According to the company's press release, MaxirenEVO converts as1 casein into as1-i casein, which leads to faster curd knitting, better moisture distribution and improved emulsification. Further, MaxineEVO performs well at low pH levels, making it ideal for mozzarella production.

"The cheesemaking industry faces mounting pressure to adopt sustainable, resource-efficient processes while catering to consumer expectations for consistent quality," said Ardy van Erp, business director of cheese at dsm-firmenich. "With MaxirenEVO, we're delivering exactly what cheesemakers need: unprecedented flexibility, superior performance and the ability to meet growing demand for pizza-perfect cheeses that stay golden after cooking and deliver a melt-in-the-mouth stretch, even at the end of their shelf life."



MaxineEVO performs well at low pH levels, making it ideal for mozzarella production.

dsm-firmenich's press release also states that MaxirenEVO ensures no residual enzyme activity after processing.

JPL Flavours Announces Appointment of Flavorist Nick Dyson

UK-based manufacturer JPL Flavours announced the addition of Nick Dyson to its team of flavorists on March 6, 2025.

Dyson has over 40 years of experience in creating both sweet and savory flavors. He has previously worked at Create Flavours, Sentient, Synergy and Danisco. He is known for his ability to solve complex ingredient challenges, such as sugar and salt reduction.

"We set the bar high when it comes to bringing flavorists into the family, and Nick exceeds these expectations," said managing director Jake Lavelle. "His reputation, creative mindset and technical expertise is exactly what we're looking for. I am confident his experience as a flavorist throughout Europe and Asia will inspire our teams to push boundaries and create authentic flavor solutions for our customers."

Dyson added, "I'm excited to join JPL Flavours, a company that shares my passion for creativity and collaboration. JPL's approach to working hand-in-hand with customers to develop unique and high-performing flavors is something that really resonates with me. I'm looking forward to contributing to the company's mission to drive the flavor industry forward."



Dyson said, "I'm excited to join JPL Flavours, a company that shares my passion for creativity and collaboration."

From top: Image by davit85 at Adobe Stock; Courtesy of JPL Flavours

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Natural Hexyl Formate

Penta International Corporation

https://pentamfg.com/

Natural hexyl formate (CAS #629-33-4, FEMA #2570, FLAVIS #09.161) contains a flavor profile described as ethereal, green and unripe banana, with odor properties described as fruity, apple, banana and sweet plums. Our material is Kosher and Halal compliant, EU & US Natural. Synthetic available.



Grapefruit Mercaptan

Avant Organics

http://avantorganics.com/

Grapefruit Mercaptan (FEMA #3700, CAS #71159-90-5) is a well-known sulfurous compound with a pungent catty tropical aroma when crude. Upon dilution, Grapefruit Mercaptan can provide many benefits to your flavors; it is great for grapefruit, tropical, and mango flavors adding top notes or finishing out a flavor profile. It also provides juiciness and freshness to any formulation along with unique mint-like cooling. Grapefruit Mercaptan can also be used for enhancing alliaceous formulas such as kimchee or onion. Avant Organics provides this material as US Natural, Kosher, non-GMO, and Halal.



Black Tea Essenza

Agrumaria Reggina s.r.l.

https://www.linkedin.com/company/agrumaria/

Colomno, in the lowland of Sri Lanka, is renowned for black tea cultivation. The leaves produced in this region are characterized by richness in malty aromas, resulting in a robust and full-bodied infusion. Black Tea Essenza is powerful, robust and aromatic. A dark side emerges after a few minutes that needs to be controlled. The woody and slightly fruity facet finally unfolds for a remarkable signature. The power of this tea will make an impact in Eau Fraiche, Cologne, or Aromatic. One can play with its smoky facet and support it in a dry woody or even amber accord.



Clove Eugenol

Givaudan

https://www.givaudan.com/taste-wellbeing/solutions-segment/givaudan-flavour-ingredients/gfi-kitchen-ingredients/clove-eugenol

As Madagascar's top producers, we ensure a consistent supply of quality clove oil and its derivatives. Sustainably processed at our state-of-the-art NATEMA plant, directly from our fair trade clove collection network, our ingredients for flavour are Kosher, Halal, and non-GMO.

Images courtesy of the manufacturers



Antillone

MANE

https://www.mane.com/media/antillone-by-mane

Leveraging its expertise in biotechnology, MANE has developed Antillone: a 100% natural ketone that delivers a distinctive fruity aroma and exceptional juiciness. This versatile molecule enhances both flavours and fragrances, creating authentic, true-to-nature sensory experiences. Vibrant, complex and irresistibly luscious, it will bring the fruity touch you are looking for.



Isobionics® Natural Nootkatone 70

BASF SE

https://www.isobionics.com/global/en/product-finder/natural-nootkatone-70

Isobionics® Natural Nootkatone 70 has a dry cedar, woody and grapefruit cedar, incense and sandalwood taste. The appearance is a clear, yellow to green liquid. The odor is slightly bitter, dry woody, cigar box, cedar, grapefruit, tobacco incense. With 70% purity, the product is suitable for a broad range of applications such as beverage formulations.



Natural Methional

Xiamen Bestally Biotechnology Co.

http://www.bestally.com.cn/

Natural methional boasts a taste description at 0.01 ppm to 5 ppm of musty tomato, vegetative, mold-ripened cheeses, onion and beef broth. This ingredient can be used in potato and cooked meat/onion flavors in sauces at 12 ppm, in bakery and frozen foods at 5 ppm and dairy and drinks at 2 ppm.



Lemon EE®, Orange EE®, and Lime EE®

Berjé

https://berjeinc.com/media/berje-report/citrus-ee-series-a-milestone-for-berje/

Berjé is pleased to announce that our Lemon EE®, Orange EE®, and Lime EE® have been officially trademarked! Our citrus EE ingredients have already proven to be popular enhancers and extenders of conventional citrus essential oils.



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https://www.solvay.com/en/brands/augeo

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Introducing the 2025 FRAGRANCE LEADERS & NEWSMAKERS

It's time to learn what innovations and technologies our experts are excited about in the world of fragrance.



Several companies wrote about the use of artificial intelligence and the digitalization of fragrance development.

Welcome to the 2025 Fragrance Leaders & Newsmakers issue! Over the last year, *Perfumer & Flavorist+* (*P&F+*) has witnessed industry leaders invest in the growth and development of innovation centers worldwide to address evolving customer needs.

This year, we decided to divide the Leaders & Newsmakers into two parts: fragrance in June and flavor in July. With this split, our experts had more space to get into their innovations and what specific technologies they predict will make their mark in the years to come. In this issue, you will get an inside look at what eight key players in the industry have marked as influencers for innovation in the fragrance space.

Several companies wrote about the use of artificial intelligence and the digitalization of fragrance development. While these tools can't completely replace the human element, they can help speed up formulation timelines, leading to quicker launches. These tools can create thousands of compounds in a fraction of the time, and many fragrance creators are looking for that efficiency.

Additionally, our experts again referenced the increased demand for sustainable, traceable ingredients in their creations. Consumers are becoming more and more conscious of what they use, especially on their bodies. Functional ingredients are still a big motivator for consumers, and fragrance companies are leveraging formulations intended to reduce stress or boost mood.

As in previous years, *P&F+* tapped industry leaders and newsmakers to weigh in on their companies' strides over the last 12 months and share their outlook on emerging trends in F&F. Some companies have provided their own introductions to the interview and have chosen a narrative format rather than a standard Q&A.

Stay tuned for the Flavor Leaders & Newsmakers!

p&f+

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FRAGRANCES
BY CAMILLE
& CHARLOTTE
× MANE

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Camille & Charlotte are the winners of the Capture What Moves photo competition held by MANE.

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Steffen Götz shared, "Underpinning our approach mentioned above, sustainability and regulatory compliance are at the forefront of our innovation efforts."

BASF has been a long-standing, trusted partner of leaders in the Flavor and Fragrance (F&F) industry. The company is poised to help its customers and partners thrive in the face of the multiple challenges and changes which are shaping the future of this dynamic business – with an expanding global production network, ambitious sustainability and innovation approaches and by leading in the development of future regulatory requirements.

In the following article, Thilo Bischoff, senior vice president of aroma ingredients; Steffen Götz, vice president of aroma ingredients; and Felix Klug, director of global regulatory and external Affairs & quality compliance aroma ingredients, share insights about major trends, the development of innovative products and key regulatory challenges faced by the F&F industry today.

Courtesy of BASF

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What major trends are currently shaping the flavor and fragrance industries, and how are they influencing BASF's product development?

Thilo Bischoff [TB]: While there are plenty of consumer trends that influence the F&F industry, there are three key focus areas that we at BASF Aroma Ingredients have identified as crucial to support our customers meet consumers' demands. These are 1) offering pragmatic sustainability solutions, 2) addressing health and wellness concerns and 3) meeting the highest safety and regulatory requirements – both now and in the future.

Offering Pragmatic Sustainability Solutions

When it comes to sustainability, consumers are increasingly prioritizing eco-friendly products and demanding transparency in sourcing and ingredient composition. At BASF, we actively invest in the development of sustainable ingredients. We are committed to ensuring biodegradability as a fundamental aspect of our new aroma ingredients, and to maintaining a clean regulatory profile. In addition, combatting climate change has become a priority in the F&F industry as more and more consumers make environmentally conscious purchasing decisions. Thus, over the past years an increasing amount of attention has been paid to the amount of greenhouse gas (GHG) emissions associated with manufacturing an aroma ingredient, from raw material extraction until it leaves the company gates.

We find it crucial to help customers achieve their ambitious scope 3 GHG emission reduction targets and to be transparent about the Product Carbon Footprint (PCF) of our products. I'm proud that we are the first large chemical company classifying aroma ingredients according to a clearly defined PCF scoring system, a 6-level color and letter scale that classifies PCF values from low to high. Most of our products fall into PCF range A, with emissions below 15 kg CO_2e/kg. In addition, we offer options with even further reduced PCF values: the reduced Product Carbon Footprint (rPCF) and BioMass Balance BMBcert product lines. We have already launched L-Menthol FCC rPCF as our first product with an rPCF label, and more products are to follow within 2025. Our rPCF aroma ingredients come with a PCF reduction of about 10 to 15% compared to the respective conventional BASF products.

Addressing Health and Wellness Concerns

Another major trend – especially in the flavor industry – is the demand for natural ingredients driven by concerns about health and wellness. As consumers become more conscious of what they are consuming and place greater importance on personal health, there is a notable shift toward products that are perceived as being healthier. At the same time, the natural ingredients business faces multiple challenges, including climate change, which affect the availability and quality consistency of these ingredients. As a solution to these difficulties, we provide the product portfolio of our innovative biotechnology brand Isobionics®. With Isobionics® we offer natural aroma ingredients that are produced using cutting-edge fermentation technology.



Thilo Bischoff, senior vice president of aroma ingredients, BASF SE.

Meeting the Highest Safety and Regulatory Requirements

Our products touch the lives of consumers everywhere, every day. We are aware of the privilege and responsibility this entails. As consumer awareness and concern about health and wellness increases, a regulatory shift towards much faster and stricter classification processes is placing increasing pressure on the F&F industry. Many ingredients that have been used for decades are currently in the process of becoming classified as – in most cases – reprotoxic substances, although their use has been shown to be safe over time. The increased pressure associated with such ingredients will be one of the biggest challenges, and increased requirements and stricter classifications will make finding alternatives difficult.

However, we at BASF are prepared to tackle these challenges. We have continuously improved our portfolio beyond legislative and regulatory compliance to guarantee safe ingredients for humans and the environment. We are a thought and action leader in the industry

when it comes to upcoming regulations such as the EU Commissions Green Deal and Chemicals Strategy for Sustainability (CSS) and we will continue to actively participate in forums that support the long-term success of our customers.

How is BASF approaching the development of innovative molecules for both the flavor and fragrance industries?

Steffen Götz [SG]: Innovating new ingredients for the F&F industry sometimes feels like doing science, art and sports at the same time. We leverage our technology positions and expertise in Chemistry and Biotechnology. We are committed to addressing varying consumer needs in a complex regulatory landscape. We need to be fast to address our customers' needs and make them more successful. Creating a new ingredient and making it big requires persistence and stamina. You need to be prepared to lose some and bounce back. But once you bring a new ingredient to the market, see it grow in large consumer products and receive great customer feedback – it's really rewarding. I am always impressed by how our team does this magic. When we see fast-growing ingredients like Vertofruct, Velberry or our broad portfolio of biotech-based natural flavors, they can be really proud.

Our innovation approach builds on our decades of experience in the F&F industry with strong external partnerships. We recognize the need to innovate new products as well as optimize processes. We do this through various initiatives like our "Virtual Innovation Ecosystem", cherishing partnerships along the value chain, listening to our partners' needs and leveraging our strong technology positions and expertise in both Chemistry and Biotechnology.

BASF possesses a vast collection of molecules including raw materials, intermediates, products and by products that can serve as foundational components for economically viable, scalable products. We can accelerate the development of innovative ingredients for the entire industry by merging our expertise with insights from customers and other key strategic partners.

Biotechnology plays a significant role in enhancing our innovation capabilities and supporting the development of new natural flavors and fragrances. BASF has over 40 years of experience in biotechnological production and operates modern biotech production facilities and state-of-the-art laboratories for strain selection and process optimization, translating the latest scientific advances in biotechnology into high-performance, sustainable products.

In 2019, we joined forces with Isobionics®, a move that has further expanded our capabilities in the



Steffen Götz, vice president of aroma ingredients, BASF SE.

fermentative production of natural aroma ingredients. We utilize microbial production strains that have a long history of safe use. By converting renewable feedstocks, we can produce aroma ingredients with 100% traceably renewable carbon. Our natural fermentation and mild refinement processes ensure that our products have a balanced organoleptic profile and a "natural" claim. By using fermentation technology, we can control the entire process – independent of weather or harvest conditions – allowing excellent reproducibility. It is possible to produce a much higher purity molecule instead of a mixture of products like the ones we get from the plant. We supply the market with solutions for the challenges industry is facing, caused by climate change and plant disease. Examples include our Natural Valencene and Natural Nootkatone. We continue to strengthen our portfolio in the citrus market while expanding our product offers into other fragrance and flavor markets, where we see a need for such solutions. Looking ahead, there are some exciting launches to come!

Underpinning our approach mentioned above, sustainability and regulatory compliance are at the forefront of our innovation efforts. We prioritize a clean regulatory profile. We make biodegradability a prerequisite for new ingredients. We focus on low Product Carbon Footprint (PCF) and renewable carbon sources. We are committed to sustainable innovations for the flavor and fragrance industry. And finally, we are eager to engage with stakeholders and always welcome input on our innovation activities.

Little Drop, **Big Effect**

Count on us as your robust partner for the future – we are passionate about supporting you with innovative flavor and fragrance ingredients that meet the highest quality standards and helping you achieve your ambitious sustainability targets. We combine our scientific strength and excellent regulatory expertise with a global production and supply network.

In everything we do, we ensure that each drop of our products is full of:

BASF
We create chemistry









Discover BASF Aroma Ingredients:
aroma-ingredients.basf.com

What are the main regulatory challenges affecting the development and sourcing of ingredients in the flavor and fragrance sectors?

Felix Klug [FK]: A key challenge for the F&F industry is undoubtedly the rapid and increasingly strict regulatory requirements placed on a wide range of ingredients. While we fully understand and support the safe use of all ingredients in consumer products, there is also a risk of over-classification that might not make a difference to consumer health and only poses huge restrictions on the variety ingredients that the industry can use, thus limiting innovation capabilities.

BASF has already adapted its innovation process to the increased requirements. However, it is important to challenge potential over-classification and to achieve a scientific exchange with authorities, as well as to regulate effects on downstream legislation such as cosmetic product regulations and detergent regulations. A major focus for us is to show that our ingredients are safe for use in consumer products and that automatic hazard-based restrictions do not necessarily improve consumer health.

Our research and development initiatives on new products prioritize creating safe and sustainable new fragrance ingredients with excellent olfactory performance that already fulfill future regulatory requirements. However, global registrations are becoming more complex, making early registration of new innovative substances even more challenging and forcing a tailored, substance-specific approach that combines market use and a focus on the most relevant global registrations.

Therefore, we make it a point to engage in global regulatory developments and to lead CSS-relevant initiatives in industry associations. Our global network of country-specific experts in over 70 countries monitors changes in existing legislation and screens for upcoming laws and trends. We are committed to providing our customers with safe aroma ingredients that meet the highest regulatory standards while delivering exceptional performance and outstanding global regulatory and product stewardship expertise to our customers.



Dr. Felix Klug, director global regulatory and external affairs & quality compliance aroma ingredients, BASF SE.

p&f+



dsm-firmenich

Maastricht, Netherlands and Kaiseraugst, Switzerland
2024 Sales: €12.8 billion



Emmanuel Butstraen shared, "Our focus on innovation, AI integration, and biotechnology advancements ensures we are ready to tackle new challenges and opportunities."

Courtesy of dsm-firmenich

dsm-firmenich is a unique player in the market, combining strengths in nutrition, health, and beauty. The merger of Firmenich of Switzerland and DSM of the Netherlands in 2023 created a powerhouse in the industry, leveraging the expertise and resources of both companies to offer a comprehensive range of products and services catering to the evolving needs of consumers worldwide. This brought together over 150 years of innovation, building a company in a category of one with combined global revenues exceeding €12 billion that promotes sustainability in all parts of our business.

dsm-firmenich has three consumer-focused units: Perfumery & Beauty; Taste, Texture & Health; and Health, Nutrition & Care. These businesses offer a wide range of products, from fine fragrances, probiotics, skincare products, plant-based proteins, to omega-3s.

dsm-firmenich's Perfumery & Beauty business partners with top global and local brands in consumer goods, lifestyle, and luxury beauty. We offer an unmatched palette of ingredients and a vertically integrated supply chain.

Perfumery & Beauty: Expanding the Realm of Fragrance

Our science-based innovations in Perfumery, Ingredients, and Beauty & Care make our customers' products more essential, desirable, and sustainable. An

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example of this is biodegradable delivery systems to extend fragrance longevity, inspired by nature and using green chemistry.

We make profragrances to enhance fragrance impact and make them longer-lasting. We are a market leader in this field with our haloScent® range of seven commercialized profragrances. These deliver coveted "freshness" from otherwise fleeting volatile top notes, and we recently expanded the portfolio with three new biodegradable options. These innovations are a testament to our commitment to sustainability and our ability to leverage cutting-edge technology to create products that are both effective and environmentally friendly.

We consistently take inspiration from nature to engineer sustainable, sustained release delivery systems, and we leverage biomaterials and green chemistry in our approach. Encapsulation technologies, which often take inspiration from nature, are vital in ensuring efficient deposition and have important implications for sustainability.

Trends Shaping Flavor and Fragrance Industries

Our NewNextNow (NNN) Barometer tracks consumer needs and trends, identifying rising trends such as functional fragrances and neuroscents, which are smells that trigger specific receptors in the brain, causing different psychological responses.

According to the latest NNN study, which was done across 20 countries and among 12,000 consumers, 76% of respondents say that scents bring pleasure in their lives, bringing a sense of hope and a promise of wellness.

Functional fragrance is a major trend that continues to rise, with neuroscents becoming the buzz word on social media.

Our breakthrough emotion™ program uses neuroscience to create fragrances that boost well-being, enhanced by AI and deep consumer insights. These target scientifically validated emotional benefits, such as happiness, relaxation, and focus. This program is designed to understand the psychological and emotional impact of fragrances, enabling us to enhance the consumer experience on multiple levels.

Supply Chain Resilience

We focus on regional self-sufficiency, integrated business planning, risk management, excellence, and vertical integration to respond to supply chain issues and cost pressures.

Within Perfumery & Beauty, our Perfumery Operations manufactures and distributes superior fragrance products over 20 different plants and warehouses that reaches thousands of customers and delights billions of consumers around the world every single day.



Emmanuel Butstraen, chief operating officer, president, Perfumery & Beauty

Incorporating AI and Digital Tools

AI is a great tool to accelerate the discovery of new ingredients, replacing extremely lengthy traditional processes. AI can also help predict their properties, including how they will smell and how they will perform in a commercial product.

Our digital creation unit uses AI to manage parameters, provide consumer insights, and visualize fragrance performance. This allows us to streamline our processes, enhance our offerings, and deliver personalized experiences to consumers. By leveraging the power of AI, we can stay ahead of industry trends and continuously innovate to meet the evolving needs of our customers.

Advancements in Biotechnology and Fermentation

Last year, we inaugurated two cutting-edge plants in southwest France to boost our production of sustainable ingredients. The first facility is a multipurpose unit to produce various bio-sourced ingredients derived from pine, and the second, a brand-new plant dedicated to the production of our iconic biodegradable musk HABANOLIDE®.

Last year we also opened a new Superfluid Extraction technology plant in India with our long-term partner Jasmine Concrete, further strengthening our green extraction capabilities in the region. We also completed the construction of a new Production Unit in La Plaine, our historic Ingredients site in Geneva, which is designed to produce revolutionary biodegradable fragrance capsules for laundry care – a first on the world market.

These advancements in biotechnology and fermentation are testament to our commitment to sustainability and innovation. By investing in these technologies, we can create products that are environmentally friendly, contributing to a more sustainable future.

Sustainability: An Underpinning Commitment

At dsm-firmenich, we're serious about sustainability. In 2024, we developed an emissions reduction plan that's been validated by the Science Based Targets initiative. We aim to reach net-zero greenhouse gas emissions across our entire value chain by 2045. Our commitment to sustainability underpins our product offerings and our operations. By investing in sustainable technologies and practices, we can create products that are both effective and environmentally friendly, as well as meeting consumers' needs.

dsm-firmenich in figures:

- 30,000 employees
- 88 manufacturing sites in 60 countries
- 15 research & development centers

Bringing Progress to Life

dsm-firmenich is a leader in the industry because of its commitment to innovation and sustainability across its three consumer business units: Perfumery & Beauty; Taste, Texture & Health; and Health, Nutrition & Care. By leveraging cutting-edge technologies, deep market insights, and a robust supply chain, we create products that enhance consumer experiences and address changing market demands.

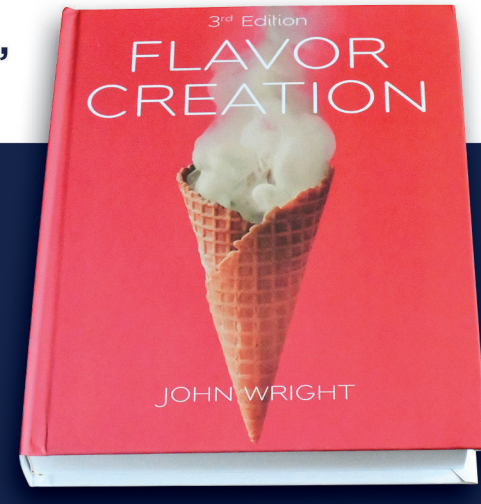
Our focus on innovation, AI integration, and biotechnology advancements ensures we are ready to tackle new challenges and opportunities. Our commitment to sustainability and innovation is visible throughout our entire operations, positioning us as a pioneer for a more sustainable future.

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JOHN WRIGHT'S FLAVOR CREATION,
Third Edition is now available!

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This must-have guide covers everything from flavor creation techniques and raw materials to end products and sensory science. Get your copy today!



Givaudan

Geneva, Switzerland

2024 Sales: CHF 7.4 billion



Givaudan's leaders said that collaboration with customers helps them develop tailored strategies that capitalize on opportunities in established markets and extend leadership in high-growth areas..

In 2024, Givaudan recorded outstanding financial performance driven by a high level of volume-related sales growth across all markets, segments, and customer groups. The company has maintained its focus on a core strategy of growing with customers through personalized, high value-added solutions, and this approach has allowed it to thrive in a dynamic market environment.

Now in the fourth year of its five-year strategic cycle, Givaudan is "fully on track with the 2025 strategy," CEO Gilles Andrier said. "I have continued confidence in our portfolio and the broad range of capabilities that we have to support the growth of our customers."

Indeed, Givaudan is "highly likely" to exceed the upper end of its average five-year sales growth target of 4-5% on a like-for-like (LFL) basis for the period 2021-2025, Andrier said.

At the end of 2024, Givaudan had:

- Over 16,900 employees
- 162 locations in more than 50 countries
- 62 creation and research centers

Sales Performance

Full year group sales were CHF 7,412 million, an increase of 12.3% on a LFL basis compared to 2023. Givaudan achieved robust growth across product segments and geographies, with the high-growth markets growing at 19.5% on a LFL basis and the mature markets at 6.4% LFL. The company posted a record free cash flow of CHF 1,158 million, or 15.6% of sales, an increase of 25.9% versus 2023.

Courtesy of Givaudan

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Fragrance & Beauty's 2024 sales were CHF 3,660 million, an increase of 14.1% LFL, against a comparable growth of 7.6% LFL in 2023. Among the business units, Fine Fragrance sales increased by 18.4% LFL, Consumer Products sales increased by 13.5% LFL and Fragrance Ingredients and Active Beauty delivered growth of 11.1% LFL. The company achieved excellent performance across all business and customer groups, with exceptional performance among local and regional customers.

"This strong growth was driven by fundamental factors including continuing strength in Fine Fragrances, a focus from our customers on innovation and a higher investment in scent to create consumer differentiating products," CEO Gilles Andrier said. "These industry leading results once again confirm our unique position."

Progress on ESG Targets

Givaudan's dedication to becoming climate positive, fostering inclusion, increasing diverse perspectives in the workplace, and protecting both the people and the environment in its supply chains has led to accelerated progress towards longer-term ambitions in these areas. Clear, measurable targets, fully aligned with the group's purpose of "creating for happier, healthier lives with love for nature" and integrated into the 2025 strategy, demonstrate Givaudan's commitment to growing the business in a sustainable way.

In 2024, the company reduced scope 1+2 emissions by 48% compared with the 2015 baseline and by 8% compared to 2023, advancing Givaudan's Nature ambition and target to be climate positive before 2050. Givaudan also met its 2025 target of converting its entire electricity supply to fully renewable sources already last year.

In 2024, the Group continued to progress on people-related targets in diversity and inclusion, increasing the number of women in senior leadership positions to 32%. We aim to achieve these targets in a way that is non-discriminatory and compliant with local laws, ensuring fairness of opportunity and merit-based re4cruitment and selection. Finally, Givaudan is advancing towards its goal of sourcing all materials and services responsibly by 2030, advancing its Communities ambition: in 2024, 85% of its naturals portfolio was sourced responsibly, up from 76% in 2023.

Growth in Beauty

Maurizio Volpi, President Fragrance & Beauty, points to a combination of market growth and a substantial increase in market share in explaining the division's success. One trend underlying market growth, Volpi said, is the emergence of a new group of young consumers.

"This new cohort of consumers from Gen Alpha and Gen Z are, to everyone's surprise, attracted by perfumes and fine fragrances," Volpi said. "They are interested in exploring new scents, and in spending their weekend afternoons exploring and smelling things in shops. There is increasing interest in expressing oneself with perfumes, especially among the younger generations."



Gilles Andrier, Chief Executive Officer, Givaudan



Maurizio Volpi, President Fragrance & Beauty, Givaudan

Growth throughout the South Asia, Middle East and Africa (SAMEA) region is another important trend, Volpi said, underlining both market growth and an increase in market share. The company has added CHF 100 million in sales just with Fine Fragrances in the SAMEA region over the last three years. "This signals the emergence of

new companies and entrepreneurs going into perfumes and beauty," Volpi said. "It is a trend that has developed over the last three to four years."

Finally, the company has seen an increase in the number of briefs won, particularly in Fine Fragrances and Consumer Products, which explains a gain in market share.

Business Accomplishments in 2024

Key milestones of 2024 included the 10-year anniversary of the company's Active Beauty business. In 2014, Givaudan took the bold step of entering the active cosmetic ingredients business and beauty biotechnology with the acquisition of Soliance in Pomacle, France. Now, according to a recent Kline study, Givaudan is the number one biotech company for high precision beauty thanks to its Active Beauty sites.

Givaudan has steadily grown its biotech industrial site, making significant investments and expanding the cosmetic actives portfolio with acquisitions. With the acquisition of b.kolormakeup & skincare in July 2024, the company is entering the make-up category, further expanding its portfolio and enhancing its ability to deliver innovative solutions.

"I want to emphasize the remarkable success we've achieved in growing the active beauty business over the last decade," Volpi said. "We grew it from 0 to over 200 million Swiss francs in sales, and now, with the addition of b.kolormakeup & skincare we are expanding growth opportunities into the beauty space and further enhancing balances and natural hedges within our portfolio."

In 2024, the company introduced innovative products addressing a range of customer needs. One example is Givaudan Active Beauty's launch of PrimalHyal™ 50 Life, a ground-breaking low molecular weight hyaluronic acid significantly enhancing sustainability. Using strain engineering and precision fermentation, its production is associated with a 92% reduction in greenhouse gas emissions, while offering potent skincare benefits like deep skin penetration and enhanced hydration.

Another example is Bloomful SplashTM, an innovation that allows perfumers to define and measure the bloom effect of water-diluted products during key moments that customers seek and expect. The groundbreaking innovation in fragrance technology enhances the sensory experience of water-diluted products by highlighting how fragrance unfolds and develops when mixed with water and has many applications in home and personal care.

As part of its strategy to increase its competitive advantage in Latin America, Givaudan inaugurated an expanded production facility at its Pedro Escobedo, Mexico site. This investment underscores Givaudan's commitment to enhancing its encapsulation technologies and effectively doubles production capacity.

At the end of 2024, Givaudan had:

- A procurement spend of over CHF 4 bn
- Over 2,800 raw material suppliers in more than 100 countries
- 15,400 additional global partners supplying indirect materials and services

Givaudan continues to leverage new technologies, advancing, for example, its digital solutions with Givaudanperfume.id, an e-commerce solution. The company developed this new digital platform for global reach and is piloting it in the Indonesian fragrance market. As an online self-service platform, it enables Givaudan to serve local customers and cater to more fragmented markets. The platform empowers local entrepreneurs to craft their own fragrances, giving them the tools they need to explore the world of scent creation.

Co-creation opportunities expanding

Collaboration with customers helps Givaudan develop tailored strategies that capitalize on opportunities in established markets and extend leadership in high-growth areas. This approach enables Givaudan to stay ahead of scientific progress, anticipate imminent market shifts, and adapt to trends in product development.

L'Appartement 125, a new dedicated Fine Fragrance Creative Center opened in 2024 in Shanghai, China, will both support Chinese brands and nurture other customers by providing insights into the latest trends in the Chinese market, including the rising demand for personalized and highly premium fragrances. The center will host workshops, training sessions, and fragrance exhibitions, further solidifying Givaudan's role as a thought leader in the industry. By engaging with local talent and fostering innovation, Givaudan aims to create a vibrant community of fragrance creators.

"We take pride in the incredible talent and determination that characterizes our team," Volpi said. "Our ability to innovate, push the boundaries, and work towards a common goal is the foundation of our success. Looking ahead, I'm confident that our drive and spirit of collaboration will allow us to overcome any challenges in 2025, and propel us to even greater achievements."

Iberchem

Murcia, Spain

2024 Sales: €338 million



José Balibrea shared, "Our agility enables us to move faster than the industry average, allowing our customers quicker access to trends and ensuring their projects are delivered in a shorter time frame."

Courtesy of Iberchem

Iberchem celebrates its 40th anniversary in 2025, and the company has continued to grow in the flavor and fragrance industry. José Balibrea, managing director of Iberchem and vice president of flavor and fragrance at Croda, shares some of the key company highlights from the past year and where he believes Iberchem will grow in the years to come.

Can you give a brief overview of some key highlights of milestones the company reached over the last 12 months?

As we actively progress with our 2030 Strategy Update, we are experiencing a heightened level of activity from various fronts. We have extended and relocated our sales and R&D centre in Dubai and established a new R&D centre at Parfex in Grasse, France. Also, Luz Vaquero was inducted into the Academia del Perfume that represents all Spanish-speaking countries.

As we approach 2025, we are proud to share our outstanding results from the previous year, a good way to kick off the celebration of Iberchem's 40th anniversary with our team. Last but not least, we've approved a significant investment at our headquarters in Spain: a second fully robotized manufacturing unit, totalling an investment of €10 million.

How is your company leveraging new technologies to enhance fragrance creation and experiences? What excites you the most?

We are mainly focusing on six technology platforms: fragrance performance, malodor control, hygiene effects,

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neuroscience, captive and sustainable raw materials and artificial intelligence. I believe we are at the beginning of a new era with AI. We strive to be more efficient and agile in our creation process by developing robust platforms for our evaluators and perfumers. Their work and creativity will never be replaceable, but we can provide them with better tools to enhance their performance. At the moment, I am particularly excited about our neuroscience program, Wavemotion, which represents another promising area of innovation pairing the universes of scents and neuroscience.

From your perspective, which key markets are facing the most challenges in terms of sourcing/production? How is this being addressed?

We are witnessing increasing uncertainty in global commerce, along with geopolitical conflicts and fluctuating raw material prices. In our case, we have limited exposure to the political environment. However, we anticipate 2025 to be challenging due to the availability and pricing of certain natural raw materials. Fortunately, Iberchem has a significant advantage for its supply chain thanks to our extensive network, which includes 18 facilities located in key countries.

With a major focus on functional scents, what type of research is your company conducting/investing in to meet these consumer demands? Can you share any insight into recent innovations?

Wavemotion is the name of our neuroscience program, which has been developed at our headquarters in Spain. It has rapidly achieved great success among our top customers. This comprehensive program focuses on neuroscience applied to olfactory perception and the impact of odors on brain oscillations. It analyzes and interprets various physiological signals, such as electrocardiography, galvanic skin response and other measurement techniques. We are now rolling out this technology and methodology across our different centres worldwide.

Additionally, I would like to announce the recent launch of our new fragrance encapsulation technology, Vernova®Caps+. These microcapsules offer further biodegradability than our previous Vernova®Caps and are designed for use in fabric softeners and detergent products.

Are there any segments that are trending in terms of innovative technology debuts? Or segments that consumers are growing more curious about?

That would be neuroscience. Wavemotion is currently one of the most exciting research programs at Iberchem,



José Balibrea, managing director, Iberchem / vice president, fragrances and flavors, Croda

and it has experienced exponential growth over the past few months. There is a rising demand for new product launches developed and tested through neuroscientific analysis. This applies to various products, including fine and home fragrances, personal care items, and even home and laundry care products. This is why, to meet this demand, Iberchem has established its own neuroscience laboratory with a dedicated team of experts.

Can you share any specific examples of how AI is helping in formulation, market analysis, or consumer insights?

Currently, AI supports our work across three key levels to enhance our operations and customer offerings:

- **Market Analysis:** AI simplifies the tasks of our marketing team by tracking new product launches and innovative claims across various global markets. By gathering and analyzing this data, our marketers gain valuable insights into industry trends, consumer preferences, and competitive strategies, enabling them to make informed decisions and adapt our product offerings accordingly.

- **Fragrance Evaluation:** AI plays a crucial role in helping our teams identify and select the best fragrances from our extensive collections that align with customer needs. By implementing a more standardized approach, we ensure that the evaluation process is faster and more precise. This efficiency allows us to respond swiftly to customer inquiries and trends, ultimately leading to higher satisfaction and improved sales of our fragrance products.
- **Fragrance Creation:** In this area, we focus on the meticulous selection and pairing of raw materials in line with the specific briefs provided by our clients. This process involves understanding the customers' desires and requirements, enabling us to deliver tailored fragrance solutions. Additionally, we leverage our expertise to suggest alternative materials that meet the brief while enhancing the fragrance formula's overall efficiency and appeal. This collaborative approach ensures that we meet and exceed customer expectations in our scent offerings.

How do you envision the fragrance industry evolving over the next 5-10 years?

Sustainability will continue to play a significant role in our operations and business practices as a citizen company within Croda, where growth is driven by innovation and sustainability. Additionally, the increased integration of AI into our daily work will significantly influence and even transform our operations. I also anticipate that emerging markets will gain prominence, potentially impacting developed countries. Finally, we can expect new business channels to emerge, as it is currently the case in China.

What are the emerging consumer trends that will shape the future of the fragrance market?

In a rapidly changing industry, it is challenging to predict which trends will endure in the future. However, based on demographic trends, it is likely that non-alcoholic perfumes will gain popularity with the growth of the Muslim population. I recently read that Muslims are projected to make up more than 25% of the world's total population, so it is natural that their consumer habits will influence global trends. On a recent trip to China, where everything is done with the mobile phone, I noticed that the fine fragrance market is much more digitalized than in Western Europe. I think that there is a huge opportunity in fine fragrances in China in that sense and that we could eventually witness some shift in consumers' fragrance shopping habits.

How is your company positioning itself to stay ahead in this rapidly changing landscape?

Agility and proximity. Despite experiencing consistent double-digit growth each year, Iberchem remains a flexible company that can swiftly adapt to changes. Our agility enables us to move faster than the industry average, allowing our customers quicker access to trends and ensuring their projects are delivered in a shorter time frame. In today's fast-paced world, this agility is a fundamental component of our customers' overall success.

Additionally, our ability to respond quickly helps us adjust to any disruptions that may affect the industry. Proximity is equally important; it involves understanding what a change means for our customers. Every company is unique, and applying a one-size-fits-all approach can lead to mistakes in numerous cases. By working on a case-by-case basis, we gain better insights into the specific impacts of changes for each customer.

p&f+



IFF

New York, New York
2024 Sales: $11.5 billion



CEO Erik Fyrwald said, "Our goal is to remain an innovation-driven company, serving diverse sectors such as home and personal care, food and beverage, and health and wellness."

IFF celebrates its 60th anniversary this year and has many achievements to be proud of since opening on the NYSE. The company is focusing on transforming its ingredient offerings and using its investments to put money towards things that will improve customer experiences, such as artificial intelligence. IFF's leaders agreed that customers want more ingredients in a faster time, leading to the investment in artificial intelligence tools, for example.

IFF's chief executive officer Erik Fyrwald and chief operating officer Ana Paula Teles de Mendoçona shared the company's recent milestones and where they believe the fragrance side of the business will go next.

What are some of the most important initiatives IFF is currently pursuing, and how do they align with the company's long-term goals?

Ana Paula Teles de Mendonça [AP]: At IFF, our research and development pushes the boundaries of what's possible. A few exciting initiatives include:

- **IFF investment in artificial intelligence applications (AI):** The speed of change in our industry has never been more evident and AI is an accelerator. We've embraced AI as a tool and a catalyst, adding value to our human expertise and experience in so many ways. One example is an application we've been using to help our team of perfumers create innovations faster and more effectively. The applications work within regulatory parameters where more than 850 data points are considered when creating a perfume, also representing more than 1400 rules. The application also considers additional factors related to a perfume's performance, physical and chemical stability, price and environmental factors – all variables that a perfumer must account for in their creation process. Our AI application is designed to reduce the complexity of all the required criteria, giving perfumers more time to focus on what they do so well – the actual art of perfumery creation. The application also enables our Scent teams to focus on wellness-driven scent attributes,

Courtesy of IFF

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which can be leveraged to support emotional, cognitive or sensorial benefits – all backed by more than 40 years of data.

- **IFF geographic expansion:** An important strategic focus for us to ensure that we have the right resources, expertise and technology in the right places to be the partner of choice for our customers around the world. At the end of the day, IFF succeeds if we can deliver better, faster, more sustainably and cost-effectively than our competition.

  In fact, I just returned from Shanghai, where we celebrated the grand opening of our Creative Center. The new location now houses state-of-the-art technology and expertise across our business units to help us co-create with our customers and deliver innovative solutions geared specifically for the Chinese consumers, in addition to serving our Greater Asia customers more efficiently. The Creative Center is home to our first global center of excellence for instant noodles, first integrated platform for R&D and scientific discoveries, and first state-of-the-art 360º digital space called the "Digital Cube".

  Being in the right places within strategic geographic locations gives us a competitive advantage when it comes to locally driven innovations, understanding our customers' needs and helping them build their businesses. We are actively working to strengthen our footprint in other geographies, like India and the Middle East that will also allow us to be more productive and compete more efficiently on the ground.
- **Transformation of our catalogue of ingredients:** As we look to the future and aim to continue innovating in more sustainable ways, our Scent team is now reimagining the molecules of the future by integrating our bioscience capabilities. We've done a lot of cross-training between our perfumers and our scientists from our Health and Biosciences business unit. We challenged our teams to look for synergies that help us develop ingredients in more natural and sustainable ways. The results so far have been impressive. One example is how we've been able to upcycle from different sources in the food industry, like Turmeric. This root is heavily used in cooking, particularly in India. Our LMR team has been able to take part of the root and the leaf that are disposed of and use those as a source for oil, which has been very popular among our perfumers.
- **Commitment to health through cutting-edge technologies:** Supported by our investment in R&D, our IFF FLAVORFIT™ technologies offer unparalleled modulation capabilities. The sweet modulation flavors amplify the sweetness perception in products with reduced or no sugar, allowing consumers to enjoy healthier options without sacrificing taste. Additionally, our comprehensive masking collection effectively conceals various off notes, ensuring a pleasant and enjoyable taste experience.



Ana Paula, president of Scent, IFF

How is IFF leveraging artificial intelligence and machine learning to enhance product development and improve efficiency in both flavor and fragrance creation?

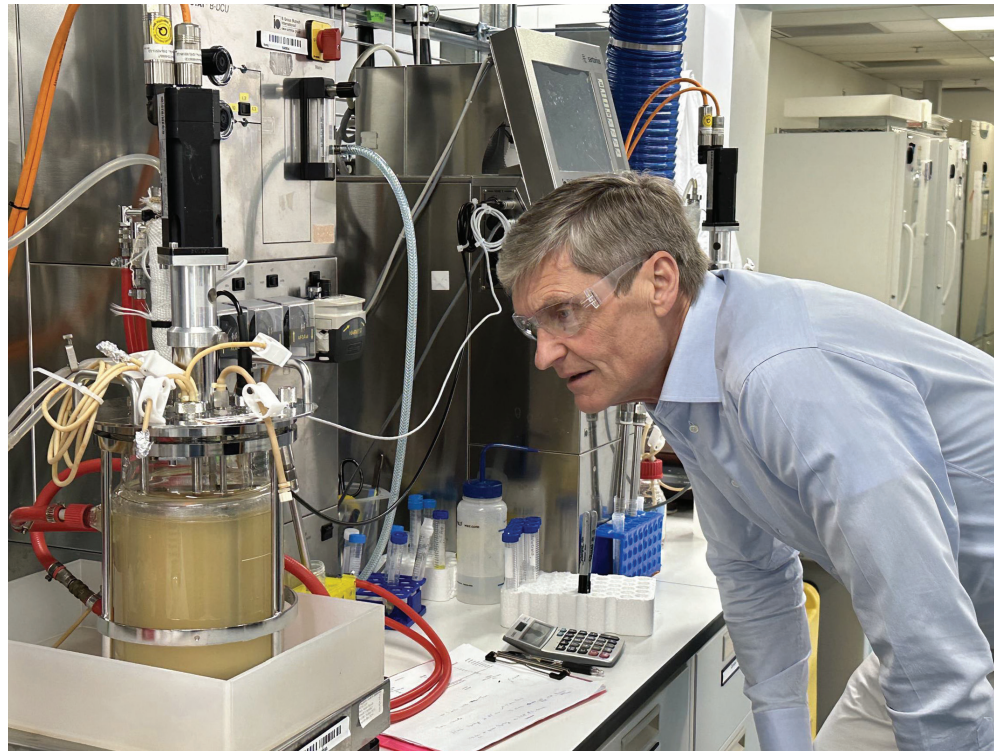
[AP]: The world of perfumery is undergoing a transformation, and artificial intelligence is an accelerator of this change, which IFF has been investing in for decades, developing its own proprietary model, allowing creative, R&D and technical teams to leverage the power of consumer data. The use of AI applications enables us to think about the future of perfumery by imagining more ways to create innovative olfactory experiences, going beyond mere hedonics.

The future of our scent molecules will also build on AI, with the possibility to use predictive models to gauge what a given molecule structure will most likely smell like, allowing us to accelerate our molecule innovation.

IFF has various innovation hubs and research centers globally. Can you share how these hubs contribute to the development of breakthrough technologies and products?

[AP]: Our innovation hubs and research centers are the heart of our technological advancements and product innovations. These centers bring together multidisciplinary teams of scientists, engineers, and creative experts who collaborate to push the boundaries of what's possible in flavor and fragrance creation, and health and biosciences. By leveraging local insights and global expertise, these hubs enable us to:

- Foster a collaborative spirit, one of IFF's trademarks, bringing together best-in-class perfumers and olfactive experts in state-of-the-art centers, such as our new Shanghai Creative Center which brings together our full capabilities, across business units.
- Develop new and sustainable ingredients that meet evolving consumer preferences and regulatory requirements, such as our Citrus Innovation Center in Florida which will officially open next year. We're fostering a transformative holistic citrus development ecosystem that supports global citrus research and development. Citrus represents a key family of ingredients for perfumery and flavors that hasn't changed too much over time. Today, with our technology in the heart of our US citrus capital we can now pool the full power of our R&D, coupled with agronomist experts to create exciting new innovations in citrus.
- Create innovative delivery systems that enhance the performance and longevity of our products.
- Utilize advanced analytical techniques to understand and predict consumer preferences, ensuring our products resonate with diverse markets.
- Foster partnerships with academic institutions, startups, and industry leaders to stay at the forefront of scientific and technological developments. A few examples include:
  - The IFF Atelier du Parfumeur, in Grasse, which is renowned for its concentration of perfumery know-how. allows for our teams to be at the center of the perfumery ecosystem, working with experts and artists that help drive creativity, a quality so highly valued among our fragrance customers.
  - This year, we invested in high-moisture extrusion (HME) technology from Coperion. This investment enhances IFF's capabilities in creating plant-based meat alternatives that replicate the appearance and fibrous texture of conventional whole-muscle meat. HME can deliver an improved eating experience of plant-based meat and seafood products, offering advantages such as increased juiciness and muscle-like texture compared to other methods.
  - We've also embarked on a collaborative four-year project with Unilever and Wageningen University & Research (WUR) to research protein-flavor interactions that address flavor challenges in plant-based meat and dairy alternatives.



Erik Fyrwald, chief executive officer, IFF

As CEO, what is your long-term vision for IFF? How do you see the company evolving over the next decade in terms of innovation, market leadership, and sustainability?

Erik Fyrwald [EF]: At IFF, we transform everyday products with sustainable solutions that enhance wellness, delight the senses, and elevate consumer experiences. We make joy!

Our goal is to remain an innovation-driven company, serving diverse sectors such as home and personal care, food and beverage, and health and wellness. Our primary focus is on delivering solutions that resonate with our customers. We achieve this by strategically investing in locations, technologies, and talent, enabling us to continue creating breakthrough innovations that

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improve lives and benefit the planet. We have been doing this for years in Scent and Taste using naturals and synthetic chemistry. Now we have our leading biosciences capabilities that will help further drive innovation across all our BU's. Two great examples of this are "super carrot" in Taste and "Envirocaps" in Scent.

I am confident we have the right strategy to lead the market for years to come.

[AP]: Looking ahead, my vision for IFF is to continue leading the industries in which we compete. Today and for the foreseeable future, our strategy is built on four key principles:

1. **Develop and grow our people.** If we win a customer's business, it's because our people make it happen. We're focused on developing the strengths of our people, both individually and as a team. That means giving them the resources they need to thrive professionally. It's not just about training, though that is a big part of the equation. It's about giving our people the opportunity to flourish, to grow and to mentor others along the way. We want to be an employer of choice, both internally, and externally, and we know that one of the best ways to attract great talent is to cultivate great talent.
2. **An obsession for our customers.** Embedded in everything we do must be the pursuit of partnership and customer satisfaction. If we listen to our customers, work closely with them, and aim to exceed their expectations in everything we deliver, that will, in turn, help them grow their business and ours.
3. **Focus on innovation.** We need to ensure we can maximize the talent and expertise of our teams, use the best tools and technology that we can access and push the boundaries of research and development to offer new, better, and more efficient innovations that don't just offer a solution, but do it with sustainability, delivering on our promise to do more good. Drawing from knowledge and resources from across our organization, we've already shown that this is possible.
4. **Operational excellence.** It's not enough to deliver great things if we can't do it effectively. We need to hold ourselves accountable to make sure we're making intelligent and strategic investment decisions, whether it's about a meeting or a major expansion.

What is your proudest achievement for IFF in the past year?

[EF]: Team IFF has many achievements to celebrate! Since joining the IFF Team early last year, I have had the privilege to travel around the world to visit dozens of our sites, meeting with thousands of dedicated IFFers and valued customers and feel the passion that drives our people.

Early in 2024, we made a strategic decision to return to basics, creating end to end business units including the Taste business with Yuvraj Arora as President and we named Ana Mendonca President of the Scent business. We did this to better focus on the core aspects of each business to deliver leading innovations more effectively and strengthen customer relationships. We also encouraged and are seeing better collaborations across BU's where they create value.

We recently celebrated 135 years in business and 60 years since IFF first became publicly listed on the NYSE. I couldn't be prouder to be part of this remarkable company and its many achievements. In addition, we opened innovation hubs in Shanghai, Florida and Dubai that enhance our ability to co-create with customers to bring exciting products to market faster.

As IFF celebrates its 60th anniversary of first being listed on the NYSE, what are some of the key milestones that you believe have shaped the company over the decades?

[AP]: Reflecting on our 60-year journey, several key milestones have significantly shaped IFF:

- 1964: IFF's listing on the NYSE, marking our transition to a publicly traded company and expanding our growth potential.
- 1992 : inauguration of the IFF Union Beach Botanical Gardens, featuring several thousand plants with an odor, and the deployment of the IFF Living technologies to extract the scent of live plants
- 2000s: Pioneering advancements in biotechnology and sustainable ingredient sourcing with the acquisition of LMR Naturals, setting new industry standards.
- 2011: Launch of our Do More Good strategy, embedding sustainability into our core business practices.
- 2020: The merger with DuPont's Nutrition & Biosciences division, creating a global leader in taste, scent, and nutrition.

These milestones reflect our commitment to innovation, sustainability, and growth, driving us to continuously evolve and meet the changing needs of our customers and the world.

How has the flavor and fragrance industry changed since IFF first entered the market, and how has IFF adapted to those changes?

[AP]: The flavor and fragrance industry has undergone significant transformations since IFF first entered the market. These changes have been driven by evolving consumer preferences, technological advancements, and a growing emphasis on sustainability. IFF has adapted to these changes

through continuous innovation and a commitment to sustainability.

We now have a completely global market where consumers in any part of the world are equally sophisticated, with expectations of benefits and functionality. Obviously, going way back, we saw the development of many companies that catered to the specific demands of their local consumers. As the world began to do more business across borders, so too did many of the small perfumeries, who also began to grow and compete at various levels. Today, what we have is a concentration of competitors resulting from mergers and acquisitions. It's interesting to note that the same has also happened with our customers, many cases. Ultimately, we now have a market where fewer players are competing to serve customers of all sizes around the world.

IFF saw the need to adapt very early on, gaining local expertise and developing relationships with customers at a local level and a deep understanding for consumer preferences. While we have a track-record of first-to-market innovations, one of the best examples of how IFF changed the dynamic of the market was in the collaborative perfumery creation process. IFF was the first to make a significant shift from where the perfumer was the "superstar," in a sense – working alone and rarely sharing formulas – to a new way of working in which the perfumer is almost exclusively creating as part of a team. Such teams include folks of different ages, levels of experience, functions and geographic regions. This revolutionized the market and truly represents how we make joy through science, creativity and heart.

By making a strategic decision to work in a new way, our Scent teams have increased the complexity of fragrance, accelerated our speed to market and meet the intensity of new consumer demands.

In addition, as part of the Panoptic Better-Being movement, we also noted that consumers are increasingly prioritizing health and wellness in their daily lives. Among many things, this shift is influencing flavor trends, with a growing demand for practical, natural options that deliver quick, proven results. People are seeking flavors that not only taste good but also support their overall well-being. At IFF, we've introduced a range of new taste modulation technologies that empower our flavorists to further refine sugar reduction and mask off notes to meet the changing needs of consumers.



This year, we also see an increase in conversations related to anti-obesity medications and we are now working closely with manufacturers to see how our technologies and expertise can help create flavorful and nutrient-dense foods and beverages for the weight-conscious consumers. We are constantly innovating and creating new concepts that align to the needs of our customers.

Can you share any recent breakthroughs or innovations that highlight IFF's contribution to the industry?

[AP]: Some notable breakthroughs include:

- Launch of IFF Science of Wellness in 2022 – a program aimed at designing scents with specific wellness benefits, combining 40 years of data, with neurosciences and our perfumers' creativity. Since the launch, several brands have embedded the capability into successful consumer products across a variety of categories, from fine fragrances to personal care and home care products.
- Launch of Ambernat, in 2021 – 100% biodegradable and renewable amber molecule.

Furthermore, over the last few years, our in-house natural ingredients capability, LMR, also launched several remarkable extracts and collections of ingredients, including the LMR Active Essences that leverage the cosmetic power of natural essences, the LMR upcycled collection, which is anchored in values of sustainability, repurposing waste into noble naturals, such as LMR turmeric extracts for perfumery, or the LMR Citrus heart collection, which proposes pure and traceable citrus extracts.

Our Innovation strategy is purpose-based and focuses on doing "What matters for planet and people." We believe that to achieve product superiority, sustainable innovation needs to be driven though a holistic approach, balancing the regenerative agenda along with the environmental impact.

As mentioned earlier, artificial intelligence and digital transformation are pivotal in the ongoing evolution of our industry. These technologies help us streamline processes, enhance creativity, and meet regulatory requirements efficiently.

Looking ahead, what are some of the key areas where IFF plans to focus its growth and innovation in the coming decade?

[AP]: We believe that bioscience will play a crucial role in transforming the industry.

Since acquiring DuPont's Nutrition and Bioscience division more than three years ago, our Health & Biosciences business unit has provided transformative capabilities to address various challenges.

Some key areas of focus include:

- **Enzymatic Catalysis:** Enzymatic catalysis will drive the development of novel molecules. Enzymes can perform transformations that are not possible with traditional organic chemistry. We have a library of over 40,000 enzymes that we can screen over circular feedstocks. The combination of technologies like organic chemistry processes and enzymatic catalysis can improve environmental impact and potentially reduce costs. For example, benign catalysis with enzymes can replace the use of precious metals in specific transformations like oxo chemistry and hydrogenation.
- **Upcycling and Valorization:** We are exploring applications for natural ingredients, particularly through upcycling, and valorizing waste and biomass. This approach aligns with our sustainability goals and reduces environmental impact.
- **Synthetic Biology:** Synthetic biology will help us further develop feedstocks and building blocks for new molecules. It will also transform existing high-volume molecules. This, in turn, creates new possibilities for innovation and sustainability in the fragrance industry.

The roots of fragrances are in natural ingredients, and modern perfumery would not exist without organic chemistry. The future, however, lies in bioscience, which will enable us to create more sustainable and innovative products.

[EF]: IFF has a long-standing history of investing in research and development, and in hiring and supporting the development of the world's leading Perfumers and Flavorists. And with our top talent we forge strong partnerships with customers, academia, startups and other leading organizations to advance our science. We have built a rich database with decades of knowledge in ingredients and consumer insights, spanning both fragrance and flavor.

The development of new technologies, such as AI, has accelerated our ability to leverage advanced knowledge of trends, consumer experiences and product testing. This enables us to create solutions more efficiently and bring them to market faster. Additionally, we are collaborating with our customers in innovative ways, using their experience and vision to create products that meet evolving consumer demands. This keeps us ahead of the dynamic nature of consumer trends in fragrance, flavors and food ingredients.

We will do what it takes to stay at the forefront of understanding, meeting and in many cases creating the trends in flavors and fragrances.

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Mane

Le Bar-sur-Loup, France

2024 Sales: €1,945 million





CEO Samantha Mane shared, "Our consumer insight department is essential for understanding consumer needs globally and driving fragrance innovation."

As a global leader in fragrance innovation, MANE sets new standards in creativity, sustainability and technology. With a relentless drive for excellence, we continue to pioneer transformative scent solutions that captivate consumers and elevate brands. Our achievements in fragrance design, consumer insights and manufacturing reinforce our position as a trusted partner. We pioneer transformative scent solutions, shaping the future of fragrance with ground-breaking sustainability initiatives and forward-thinking innovations.

MANE Group's Year of Growth and Innovation

2024 has marked a year of significant achievements and milestones for MANE. MANE reported sales of €1,945 million, an impressive organic growth of +11.2% vs 2023, on a like-for-like basis. This success is complemented by strategic executive appointments, including new directors for the Americas region, EMEA (Europe, Middle East and Africa) and ingredients research and production.

MANE has made significant strides in growing its capabilities around the world, including the inauguration of an expanded fragrance production facility in Wayne, New Jersey, powered by renewable energy, increasing production capacity by over 400%. Global expansion includes new commercial and R&D spaces in Mexico; in Gangnam Centre, Seoul; a new AROCHEMA production unit in India increasing our captive production capacity in India by a factor of 3; and a new production site in Japan. The launch of our first Fine Fragrance Creative Center in Shanghai, and new creative centers in Milan and Paris, as well as new

Courtesy of MANE

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expansion projects in Dubai and New York, solidify MANE's strong commitment and global presence in fine fragrance.

On the sustainability front, MANE secured the EcoVadis Platinum award for the fourth consecutive year and achieved certification as a Global Living Wage Employer. The company adopted net-zero climate ambitions as part of the Race to Zero campaign. We have also reaffirmed our commitment to human rights through our Human Rights Policy and our due diligence processes to assess our value chain.

For the second year running, we organized Sustainable Development Month, raising awareness and commitment among all our employees. Samantha Mane joined the Convention des Entreprises pour le Climat (CEC), a French business collective for the climate.

The change in group governance was announced: Samantha Mane succeeded her father, Jean Mane, as CEO, becoming the first woman to lead the company, underscoring MANE's commitment to remaining an independent, family-own and -run business since 1871.

Innovative Fragrance Experiences at MANE

The fragrance industry demands both functional and emotional experiences. At MANE, we lead this evolution with strong commitment to innovation, cutting-edge technologies like AI and advanced scientific methodologies.

Our WELLMOTION™ platform harnesses neuroscience to unlock fragrances' emotional potential. In partnership with CNRS and Skillcell, we developed a methodology that considers four biomarkers to assess a scent's emotional impact. By measuring the differential in their concentration, we are scientifically objectifying the emotions induced by olfactory stimuli, reflecting emotions directly connected to the brain's limbic system, allowing us to study millions of emotional combinations.

This ground-breaking approach, based on biology and advanced data analysis, guides our perfumers in the creation of olfactory signatures to stir emotions.

MANE's AQUAFINE™ technology, pioneering water-based fragrance emulsions, continues to win new markets and serve new product segments.

Our teams created a suspension of biodegradable microcapsules that deliver superior performance on fabric, meeting ECHA regulations. This innovation exemplifies our commitment to sustainability, functionality, and performance. One standout solution is MANENCAPS™ FC CLEEN, showcasing our ability to create innovative and sustainable fragrances that meet the highest standards of performance and environmental responsibility.



Samantha Mane, chief executive officer, MANE Group

AI Transforming Formulation, Market Analysis, Consumer Insights and Research

With a significant amount of investment dedicated to transformation programs such as AI, digitalization, and business optimization, MANE is reinforcing its position as an industry leader in digital innovation, through a balanced approach of creativity, technology, and expertise.

Our consumer insight department is essential for understanding consumer needs globally and driving fragrance innovation. AI-powered consumer insights improve the alignment between customer expectations and product innovation. Our AI-powered analytics monitor market trends, predict consumer preferences, and support strategic decision-making.

In R&D, our AI programs support our perfumers in their formulation work, while allowing their creativity to express itself fully. With the support of in-house AI programs, our teams also have in hand powerful tools to ensure regulatory compliance, blooming, long-lasting and more sustainable compositions.

Artificial intelligence will continue to play a major role in our fragrance development, to analyze vast amounts of consumer data, enabling scent creation based on individual preferences, and emotions, always meeting evolving consumer demands.

Excellence in Natural Ingredients and R&D Innovation

MANE's expertise in ingredients has always been at the heart of its success. MANE continues to lead the way with innovative, eco-conscious solutions

answering consumer preferences towards transparency, naturality and sustainability. Our commitment to research and innovation ensures that we remain at the forefront of ingredient development while respecting nature and communities.

The group continues to invest significantly in biotechnology, extraction technologies, sustainable solvents, and green chemistry to develop next-generation ingredients and captives.

We are continuously enriching our palette of ingredients using state-of-the-art extraction technologies. Our JUNGLE ESSENCE™ and E-PURE JUNGLE ESSENCE™ (combining Supercritical CO_2 Extraction and modern enfleurage), allow MANE to offer superior quality extracts with exceptional olfactory profiles, source of endless creativity.

Committed to sustainable sourcing and ethical supply chains, MANE prioritizes responsible sourcing through long-term partnerships with local producers and communities around the world. By supporting ethical agriculture and fair-trade initiatives, we ensure that our supply chain is both sustainable and socially responsible.

By integrating sustainable practices into every stage of production, we not only preserve natural resources but also reinforce traceability toward all the value chain and strengthen our relationships with local communities, fostering long-term economic development.

Our unrivalled palette has enabled us to develop iconic fragrances that become the new classics of perfumery.

Leading the Future: Our Strategy for Success in a Rapidly Changing Industry

The fragrance industry stands at the threshold of a transformative decade, poised to redefine itself through sustainability, technological advancements, and evolving consumer preferences. Over the next 5–10 years, the landscape will shift as brands, fragrance houses, and consumers embrace a more conscious, personalized, and immersive approach to scent creation.

Sustainability will become a core pillar of fragrance formulation. Environmental responsibility will drive every stage of the fragrance lifecycle—from responsibly sourced raw materials to biodegradable high performing formulations, green chemistry techniques to reduce environmental impact and carbon-conscious production methods. Our GREEN MOTION™ platform is the ideal tool to monitor fragrance formulation towards more sustainability. Biotechnology will also contribute to the development of sustainable, lab-grown scent molecules that mimic natural essences without harming biodiversity.

The wellness movement is reshaping the market, driving interest in mood-enhancing, relaxation-focused, stress-reducing, energy-boosting and sleep-supportive fragrances. Consumers seek scents that enhance emotional well-being. Technology will play a pivotal role.

Digital tools will offer personalized fragrance recommendations based on mood, preferences and biometric data, elevating the discovery journey. MANE's AI-powered scent development and WELLMOTION™ program, combining neuroscience and fragrance design, will accelerate formulation processes and meet consumers' expectations in terms of personal expression and emotional connection.

With innovation at heart, our innovation capacities will enable us to answer to consumers seeking the fragrance experiences, limited editions and experimental scents. Our boundless creativity and our unique ingredients palette enable MANE to offer disruptive creativity and daring, unconventional prestigious scent profiles.

Our company is a major force in the evolving fragrance market. As an independent fragrance house, we make bold choices, long-term investments and foster meaningful partnerships. We excel in identifying and nurturing emerging brands, providing creative, technical and logistical support. Our agility allows us to adapt to the needs of both established and new brands, offering tailored fragrance solutions.

Our strong commitment to innovation and research and development means that MANE is perfectly prepared to continue the adventure of being an independent family business.



Symrise

Holzminden, Germany
2024 Sales: €5 billion



In 2024, Symrise successfully launched three captives: Ambronova, Frostwood, andSalyssia, enhancing its portfolio of floral, woody, and musky fragrances.

Courtesy of Symrise

In the past year, Symrise has kept its focus on what its customers are looking for: scents with functional ingredients that cater to health and wellness benefits. As consumers seek personalized experiences from their products, their experts predict a rise in functional, mood-boosting ingredients in fragrance applications in the years to come. Chief executive officer Dr. Jean-Yves Parisot shares his key highlights from the company's performance and what he sees as the next areas of impact for his business.

Can you give a brief overview of some key highlights of milestones the company reached over the last 12 months?

In fiscal year 2024, Symrise significantly increased its sales and earnings, once again in challenging economic conditions. Last year, we aimed for organic sales growth between 5% to 7%. At the end of the year, we generated an organic growth of 8.7 %. We thus surpassed the average annual sales growth rate since our IPO in 2006. This forms a tremendous success. Adjusted for currency and portfolio effects, we boosted sales by 5.7 % to around €5 billion.

We saw good growth generated by a high dynamic in both segments. Our Scent & Care segment performed exceptionally well. Its sales rose to more than €1.9 billion and generated double-digit organic growth of 10.2%. The Taste, Nutrition & Health segment generated sales of more than €3 billion with a strong organic growth of 7.8%.

This growth came mainly from high volume increases, and an improved product mix. Fragrance and cosmetic ingredients applications continued to perform well. Sales with aroma molecules rose sharply, particularly with double-digit growth in Europe, Africa,

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the Middle East (EAME) and North America. The Scent & Care segment is increasingly profiting from their expanded competencies and innovative solutions that extend well beyond fragrances.

On a Capital Market Day in November in Holzminden, we presented our redefined ONE Symrise strategy. It aims at harnessing and amplifying the potential of our company. We will continue to focus intensely on our three strategic pillars: growth, efficiency and portfolio. In our work, we looked closely at market trends, customer needs and our understanding of customer expectations. Based on these findings, we redefined our ONE Symrise strategy. With this, we aim to unleash the full beauty of ONE Symrise. To underpin our growth, we will reinforce a strong ONE innovation ecosystem that will enable us to develop new types of solutions and services. We will also further diversify our portfolio to respond to market trends in rapidly growing areas like health and wellness under the umbrella of ONE CARE.

Also in 2024, Symrise successfully launched captives, such as Ambronova, Frostwood and Salyssia, enhancing our portfolio of floral, woody and musky fragrance ingredients. The company also expanded its range of natural raw materials to include pomelo oil, Madagascar patchouli, yellow boletus re-extract, tea drenches absolute and saffron oleoresin.

Symrise is now deploying its expertise in fragrances in direct customer projects, with a focus on innovations like Symcap BG® biodegradable capsules for fabric softeners and vegan capsules based on pea protein. The Neofresh® platform researches malodor in damp laundry, aiming to reduce bacteria in washing machines and on laundry. Additionally, the oral care business unit developed Fuji, a new cooling agent, in 2024.

Symrise has opened a creative center for the fine fragrance segment "The Penthouse" in New York City, offering a creative interaction with customers and partners. Symrise also opened a new Scent & Care hub in Barcelona, Spain, serving as a creative atmosphere for ideation and collaboration.

How is your company leveraging new technologies to enhance fragrance creation and experiences? What excites you the most?

Symrise is actively leveraging new technologies to enhance fragrance creation and experiences, as well as shortening R&D cycles. The Scent & Care segment focuses its R&D strategy on raw materials and technologies in captives and ingredients, delivery systems, multifunctional fragrances and malodor.

Symrise is also leveraging artificial intelligence (AI) to innovate in fragrance creation. By integrating these advanced technologies and innovative practices, Symrise can shorten R&D cycles, bring new products to market more quickly, and enhance the overall fragrance creation experience. It continues using artificial intelligence to optimize the use of valuable resources also linked to operations to employ the principles of green chemistry.



Dr. Jean-Yves Parisot, chief executive officer, Symrise

From your perspective, which key markets are facing the most challenges in terms of sourcing/production? How is this being addressed?

Ongoing geopolitical conflicts in Ukraine and in the Middle East are causing uncertainty and potential risks for globalized supply chains. Rising inflation rates affected our cost base at Symrise, and we experienced a high level of volatility in many of our core markets. At the same time, we showed how we can grow very profitably with our unique and diversified competencies. In the process, we further sharpened our portfolio and extensively improved our cost base.

Symrise has also implemented sustainable sourcing practices and backward integration. We focus on improving sustainability aspects, such as minimizing our environmental impact and maximizing the standards of living within the communities we source from.

With a major focus on functional scents, what type of research is your company conducting/investing in to meet these consumer demands? Can you share any insight into recent innovations?

As consumer demand grows for products that deliver both sensorial and tangible benefits, Scent & Care dedicates substantial R&D resources to functional fragrances. These scents promise specific well-being or protective effects, complementing their primary olfactive appeal.

For instance, Symrise has developed Actimood®, a fragrance ingredient to enhance mood and provide neurocosmetic benefits. Actimood® technology leverages plant extracts to stimulate positive emotions such as relaxation, well-being, protection, joy and freshness. Our Flowerconcentrole® range, a collection of high-quality, easy-to-formulate olfactive flower extracts, is one of our key innovations using Actimood® technology. It comes from sustainable sources from Madagascar, France and Bulgaria, with full traceability to the field using best ethical and environmental practices and 100% based on natural and upcycled ingredients.

Are there any segments that are trending in terms of innovative technology debuts? Or segments that consumers are growing more curious about?

Health and wellness are playing a growing role in people's lives today. To address this, we will leverage our expertise throughout the company to develop holistic solutions. We plan to use our ONE CARE platform to differentiate ourselves from the competition, assure our uniqueness and accelerate our growth. Within this approach, we intend to bundle the strengths from both our business sides. Our Scent & Care segment is developing active cosmetic ingredients and this forms one of our core competences within the segment. Our Taste, Nutrition & Health segment on the other hand offers a broad range of active health solutions for healthy diets. On top, we are working on fully integrating Probi, a leading Swedish provider of probiotics and health solutions, into our company – as an important platform that we will use to fuel innovation.

Can you share any specific examples of how AI is helping in formulation, market analysis, or consumer insights?

Symrise is leveraging AI in various areas to enhance its operations and meet consumer demands. We use AI to create perfumes based on digital fragrance models. This approach allows us to analyze thousands of fragrance formulas and historical data to identify patterns and predict novel combinations, based on consumer needs and customer expectations related to dedicated markets.

How do you envision the fragrance industry evolving over the next 5-10 years?

Symrise predicts that the fragrance industry will increasingly rely on big data and AI to create innovative and personalized fragrances. We see a growing demand for functional scents that enhance well-being and positively lift emotions. The company is investing in research and development to create fragrances that smell good and also provide neurocosmetic benefits and improve the quality of life by enhanced wellbeing and care. Symrise envisions a future where AI, sustainability, and functional scents play a significant role in the evolution of the fragrance industry.

What are the emerging consumer trends that will shape the future of the fragrance market?

Symrise has identified several emerging consumer trends that are shaping the fragrance industry. We have observed a strong emergence of indie brands with a focus on natural, organic, and functional fragrances. Consumers are increasingly seeking fragrances that offer benefits beyond scent, such as emotional well-being and relaxation. We have conducted primary consumer research to understand the lifestyles and fragrance preferences of young consumers, particularly Millennials and Generation Z. Symrise's #GENYZ initiative explores the preferences of these young consumers across various categories. Symrise has also identified a growing trend of consumers seeking fragrances that are appropriate for sensitive skin and hypoallergenic. Natural fragrances are gaining popularity, and there is a continued momentum for fruitier notes from the tropics, such as mango and pineapple.

How is your company positioning itself to stay ahead in this rapidly changing landscape?

With the ONE Symrise strategy, the Scent & Care segment is strategically positioned to stay ahead in the fragrance industry through several key initiatives and approaches. Symrise leverages its unique business portfolio and backward integration of key raw materials to open up future-oriented solutions.

Constantly evaluating consumer behavior, Scent & Care uses research teams and digital analytics to adapt quickly to market shifts. This feedback loop helps shape everything from new molecule synthesis to fragrance compositions. Scent & Care's integration of sourcing, advanced research, and digital capabilities positions the segment to shape the future of modern perfumery and cosmetic ingredients. This forward momentum, grounded in a genuine commitment to ethical business practices, ensures that the organization can keep addressing changing consumer desires for cleaner, more functional, and more emotionally resonant scents. p&f+

Takasago International Corp.

Tokyo, Japan

Tokyo-based Takasago made significant strides in the last 12 months, including double-digit growth across its affiliate network and notable growth in emerging markets. President and chief executive officer Satoshi Masumura discusses the company's use of developing technologies to keep its momentum in the coming years.

Can you give a brief overview of some key highlights of milestones the company reached over the last 12 months?

The fragrance organization achieved a significant milestone in 2024 by reaching the $0.5 billion sales revenue mark. This has been fueled by double-digit growth across the affiliate network, with notable record growth rates attained in the emerging markets in LATAM (Latin America), SEA (Southeast Asia) and EMEA (Europe, Middle East and Africa).

We partnered with more customers than ever before, expanding our reach across the globe, propagating new technology and creativity to drive consumer liking and enhance our partners competitiveness in the marketplace.

We built new capabilities in key markets, with the highlight being the state-of-the-art creative center in Mumbai to deliver enhanced levels of service to our customers in this growth market.

How is your company leveraging new technologies to enhance fragrance creation and experiences? What excites you the most?

Fragrance creation through artificial intelligence cannot be ignored. We work with many different approaches, sometimes leaning more on bottom-up approaches based on the vast number of formulas in our hands, and sometimes taking a top-down that starts from consumer insights and the formula behind them. We have leveraged both approaches in the past year with successful product launches in the EMEA region.

In addition, understanding better how to enhance consumer experiences is driven by multiple advancements from the developments in neuroscience to the learnings from the mass of data available from our highly connected consumers.



Company president Satoshi Masumura shared, "The need to address mental health challenges will remain critical, so how fragrances augment positive emotional experiences will continue to be relevant."

Courtesy of Takasago

From your perspective, which key markets are facing the most challenges in terms of sourcing/production? How is this being addressed?

All markets are interconnected today and there are no regions that are insulated from supply chain disruptions.

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The industry is navigating global conflicts, trade wars with the threat of tariffs and capacity constraints of key materials. Effective forecasting to meet customer demand is one approach, but it is critical to develop multiple sourcing strategies to mitigate risk.

With a major focus on functional scents, what type of research is your company conducting/investing in to meet these consumer demands? Can you share any insight into recent innovations?

We have actively invested in the field of olfactive receptors for more than 10 years and we see more and more products launched including this technology, especially in the area of malodor control across all markets. We still believe that there is plenty of room to explore as despite the general trend to globalization there remain specific country issues due to the combination of habits and climate.

The general area of wearable devices has allowed us to quantify functional and emotional benefits for consumers outside laboratory conditions, a recent advance being a successful clinical trial for improved sleep from scent in home.

Are there any segments that are trending in terms of innovative technology debuts? Or segments that consumers are growing more curious about?

The area not mentioned so far but is trending as a societal issue and which certainly has a technology element is sustainability. Indeed, Takasago contributed to a recent article in this journal on IFRA's Green Compass concerning how to improve the environmental impact of producing fragrance ingredients. In general, the topic of biodegradability is rising with the most concrete example to date being the commercial development of biodegradable capsules (TAKAPS®5G), a new capsule chemistry. Another broad issue is reducing the carbon footprint of our industry, and this will require both new approaches to creation and raw material sourcing to meet the announced goals of the industry and our customers for 2030, which is just 5 years away. Finally sourcing of raw materials, especially naturals, attracts ever increasing interest, both from consumers and regulators.

How do you envision the fragrance industry evolving over the next 5-10 years?

Growth will continue apace across the emerging markets with new consumer demands influencing the creative process. New technologies will be needed to address the changes to the regulatory landscape and the collective challenge to reduce our carbon footprint.



Satoshi Masumura, president and chief executive officer, Takasago

What are the emerging consumer trends that will shape the future of the fragrance market?

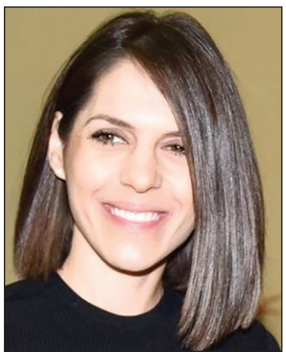
Developed markets are saturated, so new product forms will be a focus. These will require new fragrance solutions. The need to address mental health challenges will remain critical, so how fragrances augment positive emotional experiences will continue to be relevant. Niche markets will continue to be buoyant as consumers demand customized solutions that drive individuality.

How is your company positioning itself to stay ahead in this rapidly changing landscape?

Takasago has strong creative and technical capabilities in the key growth markets. We are guided by the philosophy of "contributing to society," so we adapt as societies evolve. With strong R&D platforms, we can address the myriad of demands from the consumer, from the emergence of AI generated fragrances to supporting our partners to meet new product claims.



The panel evaluated ingredients from Capua 1880, a family-run business built across five generations since it was founded in 1880 in Reggio Calabria.



BY MARIA PALASSAROU
Flavorist, Givaudan

Flavor Report: EU Edition

Our panelists from the British Society of Flavorists evaluate several citrus ingredients for their potential in flavor applications.

Organoleptic Evaluation Panelists

- **Dr Andrea Albertino**, Senior Flavorist, Esarom
- **John Forbes**, Consultant, Ceressence Consultancy
- **Dr Bimal Karmakar**, Principal Flavorist, Givaudan
- **Jack Nicol**, Flavorist, IFF
- **Britta Nobis**, Senior Flavorist, Silesia
- **Dr Maria Palassarou**, Flavorist, Givaudan
- **Dr Ján Peťka**, Head of Flavor Development, Austria Juice
- **Aine Walsh**, Senior Flavorist, Keurig Dr Pepper

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In this month's column we evaluate ingredients from Capua 1880, a family-run business built across five generations since it was founded in 1880 in Reggio Calabria. Capua 1880 has been internationally recognized for their expertise and knowledge on citrus, specializing particularly on citrus oils and ingredients for flavors, as well as fragrances.

Orange Back-End

FEMA #2825, **CAS** #8028-48-6, 8008-57-9
***Botanical Origin*:** Citrus sinensis, (L) OSBECK.
Status & process: 100% Natural Complex Substance. Short path concentration process of single-fold cold-pressed orange oil.
Key Volatiles: Decanal 8-12%, linalool 8-12%, citral 15-19%, limonene 8-12%, sesquiterpenes 7-19%.
Odor Descriptors @100%: Aldehydic, soapy, waxy, fatty, sweet orange, juicy, floral, pithy, woody, complex.
Taste Descriptors @1ppm: Aldehydic, juicy, sweet orange, pithy, woody, fatty, citrus peel, slightly metallic, mouth feeling.
Possible applications: As a concentrated fraction of orange oil carbonyls and sesquiterpenes, it would provide body complexity as well as taste and mouthfeel to all orange flavor profiles. The characteristic aldehydic, sweet orange and woody notes would fit well on various citrus profiles for beverage and confectionary applications. Its juicy, sweet element would also help on orange juice replacements, as also on fruit punches profiles.

Head-Block fraction ex Orange

FEMA #2826, **CAS** #8028-48-6, 68606-94-0
***Botanical Origin*:** Citrus sinensis, (L) OSBECK.
Status & process: 100% Natural Complex Substance – First fractions extraction from Orange Back End oil via molecular evaporation.
Key Volatiles: Decanal 15-20%, geranial 15-20%, neral 8-12%, dodecanal 6-10%, limonene ≤8%.
Odor Descriptors @100%: Aldehydic, soapy, waxy, fatty, sweet, juicy, green, floral, slightly herbal notes.
Taste Descriptors @1ppm: Soapy, waxy, aldehydic, albedo, coriander notes, juicy, sweet, green, herbal notes.
Possible applications: As a concentrated fraction of orange oil carbonyls, and particularly aldehydes, it would provide body and impact to all orange flavor profiles. Apart from sweet orange tonalities, its characteristic aldehydic note would also fit well to other citrus profiles, such as blood orange, mandarin, tangerine, grapefruit. Moreover, its waxy, green element would be a great addition in melon profiles.

Body-Block fraction ex Orange

FEMA #2826, **CAS** #8028-48-6, 68606-94-0
***Botanical Origin*:** Citrus sinensis, (L) OSBECK.
Status & process: 100% Natural Complex Substance – Obtained from Orange Back End oil via molecular evaporation on multi-pass process.
Key Volatiles: Valencene ≥67%, cadinene ≤10%.
Odor Descriptors @100%: Sweet orange, woody, juicy, fruity, floral violet, pithy, aldehydic.
Taste Descriptors @1ppm: Woody, juicy, spicy, floral violet, sweet orange, powdery, slightly aldehydic.
Possible applications: As a concentrated orange oil sesquiterpene fraction, containing mainly woody valencene and less back-end sesquiterpenes, it would provide complexity, body and long-lasting impact to all orange flavor profiles. Its woody, floral character would also fit well to other citrus profiles, such as blood orange, grapefruit, mandarin for beverage and confectionary applications.

Tail-Block fraction ex Orange

FEMA #2826, **CAS** #8028-48-6, 68606-94-0
***Botanical Origin*:** Citrus sinensis, (L) OSBECK.
Status & process: 100% Natural Complex Substance – Obtained from Orange Back End oil via molecular evaporation on multi-pass process.
Key Volatiles: Valencene ≥7%, α-sinensal ≥6%, β-sinensal ≥8.5%.



The Head-Block fraction ex Orange ingredient can be used in blood orange applications.

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Odor Descriptors @100%: Sweet, woody, pithy, albedo, juicy, candy, jammy, fatty, slightly aldehydic, herbal notes.
Taste Descriptors @1ppm: Woody, pithy, albedo, slightly aldehydic, citrus peel, juicy, cooked, grapefruit notes, metallic, bitter flavonoid taste.
Possible applications: As a concentrated orange oil sesquiterpene fraction, it would provide complexity, body, long-lasting taste and mouthfeel. Ideal for confectionary and beverage applications to give citrus and mixed fruit flavors prolonged orange character. Its sweet, candy element would fit well on marmalade, tart and other cooked fruit profiles. The characteristic pithy, albedo note would benefit mandarin and tangerine profiles, whereas its woody spicy element could be a great addition to whisky and cola flavors. Moreover, the bitter metallic taste, due to orange residue content, could help on bitter orange or bitter herbal flavor profiles.

Orange Compact Deco

FEMA #2825, **CAS** #8028-48-6, 8008-57-9
***Botanical Origin*:** Citrus sinensis, (L) OSBECK.
Status & process: 100% Natural Complex Substance – Obtained from single-fold orange oil, highly concentrated with its natural derivatives and orange juice extract.
Key Volatiles: Limonene 55-75%, linalool ≤12%, geranyl acetate ≤6.5%, citral ≤2.5%.
Odor Descriptors @100%: Sweet orange, floral, juicy, fresh, fruity, estery, ethereal, aldehydic, zesty, perfume notes.
Taste Descriptors @10ppm: Sweet orange, floral, fruity, ethereal, aldehydic, soapy, peely, bergamot note.
Possible applications: Orange Compact Deco, oil enhanced on key heavy molecules but retaining the fresh and juicy top notes, would fit well on sweet orange profiles, as also orange juice tonalities providing freshly squeezed citrus notes. Its fruity, estery element would make it ideal for orange flavor profiles for children, whereas the zesty note would also benefit lemon flavor profiles. Moreover, the floral bergamot character would make it a great addition to tea flavors, such as Earl grey.

Lemon Compact Deco

FEMA #2626, **CAS** #84929-31-7, 8008-56-8
***Botanical Origin*:** Citrus limon, (L) BURM.f.
Status & process: 100% Natural Complex Substance – Obtained from single-fold lemon oil, highly concentrated with its natural derivatives and lemon juice extract.



The lime compact deco ingredient could be used for cola flavor profiles.

Key Volatiles: Citral 30-55%, limonene 9-25%, geranyl acetate ≤11%, γ-terpinene ≤6%.
Odor Descriptors @100%: Sweet lemon, zesty, juicy, fresh, floral, peely, coumarin notes.
Taste Descriptors @10ppm: Juicy, sweet lemon, zesty, peely, floral, lemongrass notes.
Possible applications: Lemon Compact Deco, oil enhanced on key aroma molecule citral but retaining the fresh and juicy top notes, would fit well on freshly squeezed lemon flavor profiles. Its characteristic sweet lemon element would make it a great addition for lemon candy flavors, as also lemon sherbet profiles. The lemon zesty note would benefit limoncello flavors, whereas its floral coumarin aspect would fit well on Earl grey type tea profiles.

Lime Compact Deco

FEMA #4849, **CAS** #90063-52-8, 8008-26-2
***Botanical Origin*:** Citrus aurantifolia, (Christman) SWINGLE.
Status & process: 100% Natural Complex Substance – Obtained from single-fold lime oil, highly concentrated with its natural derivatives.
Key Volatiles: Citral 24-41%, limonene 20-35%, γ-terpinene 5-15%.
Odor Descriptors @100%: Lime expressed type notes, juicy, sweet lemon, zesty, floral, lemongrass, coumarin notes.

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Taste Descriptors @10ppm: Sweet lemon notes, juicy, peely, floral, coumarinic.

Possible applications: Lime Compact Deco, lime expressed type oil enhanced on key aroma molecule citral but retaining the juicy top notes, would fit well on lemon-lime flavor profiles for beverage applications. Its characteristic sweet lime element would make it also a great addition for sweet lime flavors for confectionary applications. Moreover, the sweet, coumarinic lime note would give complexity to cola flavor profiles.

Mandarin Compact Deco

FEMA #2657, **CAS** #84929-31-7, 8008-31-9

***Botanical Origin*:** Citrus reticulata, BLANCO.

Status & process: 100% Natural Complex Substance – Obtained from single-fold mandarin oil, highly concentrated with its natural derivatives mandarin juice extract.

Key Volatiles: methyl-N-methylanthranilate ≤18%, limonene 45-60%, γ-terpinene 6-18%.

Odor Descriptors @100%: Floral, fruity, spicy, pithy, peely, aldehydic, fatty, woody musty, medicinal notes.

Taste Descriptors @10ppm: Floral, fruity, pithy, fatty, aldehydic, woody, spicy, medicinal, herbal, green.

Possible applications: Mandarin Compact Deco, oil enhanced on key aroma molecules but retaining the juicy top notes, would fit well on various citrus flavor profiles for beverage applications, such as mandarin and tangerine due its pithy spicy character, and also blood orange due its floral notes. Its characteristic floral, musty element would make it a great addition for concord grape flavors. Moreover, the spicy ,terpenic notes could benefit spice mix profiles, whereas its medicinal herbal character might fit well in spirits tonalities, like gin flavors.

Bergamot Compact Deco

FEMA #2153, **CAS** #89957-91-5, 68648-33-9/8007-75-8

***Botanical Origin*:** Citrus bergamia, RISSO et POITEAU.

Status & process: 100% Natural Complex Substance – Obtained from single fold bergamot oil, highly concentrated with its natural derivatives & juice bergamot extract.

Key Volatiles: Linalyl acetate 50-65%, linalool 15-25%, limonene 5-15%.

Odor Descriptors @100%: Floral, sweet, bergamot, lavender, herbal, soapy, lime notes, perfumery.

Taste Descriptors @10ppm: Floral, sweet, bergamot, lavender, woody, soapy, metallic, slightly cardamom notes, lime.

Possible applications: Bergamot Compact Deco, oil enhanced on key aroma molecule linalyl acetate characteristic of the sweet floral bergamot note, would be the ideal addition for Earl grey tea flavor profiles. Its characteristic floral, sweet element would make it also a great addition for orchard fruit profiles, like peach and apricot, as well as honey and brown flavors like chocolate. Moreover, its floral, woody lavender note would give complexity to dried fruit and tobacco flavor profiles, as also to Gin tonalities providing a Juniper berry characteristic note.

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- NATURAL ALPHA-PINENE
- NATURAL BETA-CARYOPHYLLENE
- NATURAL BETA-PINENE
- NATURAL BISABOLENE
- NATURAL BORNEOL
- NATURAL CAMPHENE
- NATURAL CEDRENE
- NATURAL CITRAL
- NATURAL DELTA-3-CARENE
- NATURAL D-LIMONENE
- NATURAL EUCALYPTOL
- NATURAL FARNESENE
- NATURAL FENCHYL ALCOHOL
- NATURAL GAMMA-TERPINENE
- NATURAL GERANIOL
- NATURAL LINALOOL
- NATURAL L-LIMONENE
- NATURAL MYRCENE
- NATURAL NEROL
- NATURAL NOOTKATONE CRYSTALS
- NATURAL NOOTKATONE LIQUID
- NATURAL OCIMENE
- NATURAL PHYTOL
- NATURAL SABINENE
- NATURAL TERPINEOL
- NATURAL TERPINOLENE
- NATURAL VALENCENE

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4 Dedrick Place, West Caldwell, NJ 07006 ■ Phone: (973) 740-2300 ■ Fax: (973) 740-1839

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