



# Fragrance Innovation Spotlight

*Latest Technologies & Market Trends*

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# Executive Summary

Key insights from recent innovations and market trends

## Artificial Intelligence

AI supports perfumers by enhancing their role in fragrance development.

### Benefits of AI:

- **Augmented creativity:** AI analyses large datasets and proposes novel scent combinations, inspiring perfumers with fresh ideas.
- **Streamlined development:** AI accelerates fragrance prototyping, reducing time from concept to formula.

### Limitations of AI:

- **Sensory complexity:** AI cannot replicate the full nuance and emotional depth of the human sense of smell.
- **Refinement and testing:** AI-generated formulas require expert sensory evaluation and iterative adjustment by perfumers.
- **Continuous learning:** AI models depend on ongoing training and human oversight to remain accurate and relevant.

## Sustainability

Sustainability initiatives in the fragrance industry are progressing through innovative practices that reduce environmental impact while strengthening brand credibility.

### Latest innovations in sustainable fragrance:

- **Alcohol-free formulations:** Lower environmental impact and reduce skin sensitivity.
- **Upcycling:** Transforming waste materials into fragrance ingredients and alcohol, supporting a circular economy.
- **Sustainable ingredients:** Prioritising responsibly sourced, renewable, and upcycled raw materials.
- **Biosynthesis:** Using green chemistry and fermentation to create high-quality fragrance materials with reduced resource intensity.
- **Consumer transparency:** Offering clear, accessible information on ingredient sourcing and production processes.

## Consumer Trends

Key factors shaping fragrance trends and the industry:

- **Sustainability:** Rising demand for eco-friendly ingredients, responsible sourcing, sustainable packaging, and ethical practices.
- **Personalisation:** Growing consumer desire for customised and bespoke fragrance experiences.
- **Wellness:** Increasing interest in scents associated with well-being, mood enhancement, and relaxation.
- **Novel olfactory experiences:** A pursuit of distinctive, immersive, and multi-sensory perfume encounters.
- **Accessibility:** Preference for affordable options (e.g. dupes and discovery sets) and convenient, travel-friendly formats such as solid or roll-on perfume.
- **Social media influence:** Digital platforms and influencers driving product reviews, brand discovery, trend awareness, and community engagement (e.g. [Fragrantica](#)).

## Neuroscience

Neuroscents are emerging as a key frontier in fragrance innovation, delivering benefits that extend beyond traditional olfactory pleasure.

Perfume houses are increasingly leveraging advanced technologies – such as AI, neuroscience research, and brain imaging – to create functional fragrances designed to influence well-being and emotional states.

### Desired functions of neuroscents:

- **Mood enhancement:** Promoting happiness, relaxation, and confidence.
- **Cognitive enhancement:** Supporting focus, mental clarity, and concentration.
- **Energy boost:** Increasing alertness and vitality.
- **Stress reduction:** Alleviating anxiety and fostering a sense of calm.

# AI-Driven Innovations

*Tools to assist fragrance creation, explore olfactory white spaces, and optimise processes*

## osmo

**Digitising Smell:** Osmo employs a “*Principal Odor Map*” to predict how a molecule will smell from its structure, enabling the discovery of novel fragrance ingredients.

<https://www.osmo.ai/>

## ScenTronix

**Algorithmic Perfumery:** Platform *EveryHuman* creates personalised scents based on questionnaires. The system comprises a large machine with 500+ ingredients for fast prototyping.

<https://scentronix.com/>

## moodify

**Scent Control & Reformulation:** *Scent AI* solution enables brands and fragrance houses to design, control, and optimise scent experiences. It also supports (re)formulation to address regulatory, inventory, and pricing needs.

<https://www.moodify.ai/>

## NINU PERFUME reinvented

**The Smart Dispenser:** A patented *Smart 100-in-1 Fragrance Device* uses an AI app to blend and dispense scents based on user’s mood and occasion. 1 bottle, 100 scents.

<https://ninu-perfume.com/>



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# Longevity Technologies

Novel encapsulation and formulation techniques for long-lasting fragrances

**KitoZyme**

**Eco-Friendly Dual-Shell Encapsulation:** *Fungal Chitosan-Silica Dual-Shell Microcapsules* exhibit superior mechanical and barrier properties, demonstrating significantly higher fragrance retention compared to single-shell systems.

[Weblink](#)

 **microcaps**

**Perfume Pearls:** Water-based, ethanol-free, vegan and biodegradable fragrance encapsulation designed for strong and long-lasting scent performance.

<https://microcaps.ch/>

 **CLEAN BEAUTY**  
COLLECTIVE

**Micro-Emulsion Technology:** Proprietary *CLEAN RESERVE H2EAU HYDRO-TEC* stabilises fragrance oil in water, creating a long-lasting and water-based fragrance that is both hydrating and gentle on the skin.

<https://www.cleanbeauty.com/>

**BLANKO**  
BY KING

**Time-Lock Technology:** A specialised blend of oils and natural antioxidants designed for long-lasting fragrances in tropical climates, extending scent wear for up to 16 hours on skin and 24 hours on clothing.

[Weblink](#)



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# Sustainable Tech

*Innovative sustainable solutions in fragrance creation*

## AIRCO

**Carbon-Negative Fragrance: AIRMADE Technology** converts captured CO<sub>2</sub> and hydrogen into carbon-negative alcohol using renewable energy, powering AIR Eau de Parfum – the world's first fragrance made from CO<sub>2</sub>.

[Weblink](#)

## Debut

**Bio-manufactured Scent Molecules:** Debut leverages a *Plant Cell Biotech Platform* to create both bio-identical and novel fragrance molecules. This technology enables the reproduction of rare and complex scents without the need for cultivation.

[Weblink 1](#) and [Weblink 2](#)

## Scent No. M

**Lab-Grown Essential Oils:** Scent No. M produces novel essential oils using lab-grown, non-GMO bacteria, avoiding animal and plant extraction. Their sustainable process yields scents ranging from tropical florals, grass, to sea air.

[Weblink](#)

## Prof. Kyle Lauersen's Research Group

**Algae-Based Agarwood Compounds:** Engineered algae *Chlamydomonas reinhardtii* sustainably produce agarwood sesquiterpenoids at room temperature, generating minimal waste and achieving yields up to 25x higher than previous methods.

[Weblink](#)



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# Neuroscience Tech

*Harnessing neuroscience to craft scents that evoke emotions and enhance well-being*



**Neuroscience-Validated Scents:** In partnership with MyBrain Technologies, Amoi developed four fragrances – Relax, Focus, Joy, and Energy. Their mood-enhancing effects were clinically validated through EEG (electroencephalograms), ECG (electrocardiogram) and user feedback.

[Weblink 1](#) and [Weblink 2](#)

## NOS™ (No Ordinary Scent)

**Emotion-Driven Branding:** NOS leverages *Emotiontech*, an AI-driven, emotion-based technology that analyses customer data to create brand scents that evoke specific emotions and deepen brand connections.

<https://nosemotiontech.com/>

## eScent®

**Emotion-Responsive Wearable:** *eScent* is a patented wearable that dynamically releases and adjusts fragrances in real time according to a user's emotional and physical state.

<https://www.escent.ai/>

## BioEssence

**Olfactory Wearable for Well-Being:** *BioEssence* is an app-controlled wearable that tracks a user's physiological state through cardio-respiratory data and releases up to three scents to enhance mental well-being.

[Weblink](#)








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# Neuroscience-backed Fragrances

*Applications of neuroscience in brand fragrance creation*

Brand	Product / Line ( <a href="#">Weblink</a> )	Neuroscience Approach	Neuro-Psychological Claim / Effect	Launch Year
	<a href="#">Phantom</a>	Brain measurements, AI and algorithmic tools by IFF	Elicit feel-good emotions - alertness, energy, and sexiness	July 2021
	<a href="#">Lifeboost</a>	Human studies by Takasago measured physiological markers	Mood enhancers and promote well-being	June 2022
<b>MOSCHINO</b>	<a href="#">Toy 2 Pearl</a>	Brain measurements and AI tool by IFF	Stimulate joyfulness and energy	Sept 2023
	<a href="#">Collection of Emotions</a>	ScentCube algorithm by IFF	Evoke specific emotions	April 2024
	<a href="#">Adidas Vibes</a>	Consumer testing by Coty	Elicit positive emotions	Sept 2024
	<a href="#">Heart Notes</a>	Firmenich's EmotiBoost and EmotiWave, and Symrise's Actimood technology	Increase the power of seduction	Sept 2024



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# Emerging Fragrance Trends and Formats (1/2)

*Fragrance trends are evolving to meet consumer demands for sustainability, personalisation, and innovative sensory experiences*

## Perfume Oil



Perfume oils are highly concentrated and alcohol-free. Apply directly to skin for a long-lasting scent.

*Brands: [Oil Perfumery](#), [NEST New York](#)*

## Solid Perfume



Solid perfumes are compact, travel-friendly, and alcohol-free, providing long-lasting, subtle fragrance. Available in tins, sticks, or balms.

*Brands: [Diptyque](#), [Glossier You](#)*

## Gel Perfume



Gel Perfume offers a novel fragrance experience in a convenient, portable format. Its compact design is perfect for on-the-go touch-ups.

*Brand: [Jo Loves](#)*

## Scented Body Care



Scented body care products (e.g. lotions and mists) offer a unique fragrance experience that can be layered with perfume for a long-lasting, personalised scent.

*Brands: [Sol de Janeiro](#), [Bath & Body Works](#)*

## Scented Hair Care



Fragrant hair care products (e.g. mists and oils) refresh your hair, keep it smelling delightful throughout the day, and enhance smoothness and shine.

*Brands: [Jo Malone](#), [Diptyque](#)*

## Natural Fragrances



Natural fragrances, crafted from botanical extracts and essential oils, are often gentler on skin and more environmentally friendly.

*Brands: [Abel](#), [DedCool](#)*

# Emerging Fragrance Trends and Formats (2/2)

*Fragrance trends are evolving to meet consumer demands for sustainability, personalisation, and innovative sensory experiences*

## Gourmand Perfume



Gourmand or edible fragrances evoke the aroma of food and desserts. Often featuring notes such as vanilla, chocolate, and caramel, to create a comforting and indulgent sensory experience.

*Brands: [Kayali](#), [PHLUR](#)*

## Pheromone Perfume



Pheromone perfumes, containing synthetic compounds like Androstenol, claim to influence attraction. However, scientific evidence for their effectiveness is limited and often contradictory.

*Brands: [Eye of Love](#), [Pure Instinct](#)*

## Designer-Inspired Perfume



Also known as fragrance dupes or alternatives, are crafted to capture the essence of popular designer scents while offering a more accessible price point.

*Brands: [Dossier](#), [Noted](#), [Aromas](#)*

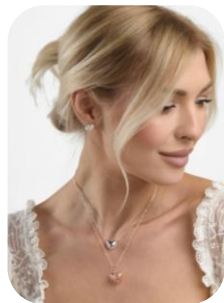
## Wearable Scent Diffuser



Wearable scent technology allows users to experience personalised fragrances in a portable, discreet and stylish format.

*Brands: [Scent Stays](#), [ALMA](#)*

## Fragrance Jewellery



Fusing fragrance with fashion, scented jewellery blends perfume with stylish, unique accessories, creating a captivating and enduring olfactory experience.

*Brands: [Perfumed Jewelry](#), [Perfino](#)*

## Fragrance Vending Machine



The machine allows customers to sample and purchase perfumes on demand, with strategic placement in high-traffic areas like entertainment venues, train stations, and public restrooms.

*Brands: [Perfumatic](#), [ScentStation](#)*

# Contact Information



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