

# Multidimensional Fragrances at Home

How the technical, hedonic and cost factors of the laundry and home care categories are changing the way fragrances are developed.

In a recent review of The Project of Emerging Nanotechnologies' Consumer Products Inventory ([www.nanotechproject.org](http://www.nanotechproject.org)), which comprises some 1,600 products, Euromonitor International's ([www.euromonitor.com](http://www.euromonitor.com)) Emily Potts noted, "nanotechnology laundry care products listed include a fabric softener that reduces static and prevents detergent residue from clinging to clothing, while another promises enhanced fragrance and another prevents colors from fading."

Products that have appeared in the inventory have included silver nanoparticle-containing antibacterial/odor-neutralizing fabric softeners and appliances with antibacterial sterilizing wash claims.

As nanotechnology's impact on detergents and cleansers is emergent, and therefore unknown, Potts' story noted, "new detergent innovation might not be altogether necessary."

Potts added, "For the time being, light detergents that promise to retain a fabric's qualities could hold potential, but with nanotechnology relatively new and just a tiny corner of the textile world, it would be unwise to act now with specialized detergents as their appeal would be extremely limited. Instead of producing detergents and fabric softeners intended to preserve and retain a fabric's qualities, laundry care manufacturers can look to nanotechnology to develop their product range."

While nanotechnology might drive innovation for tomorrow's products, today, cost and time-saving are the key factors for fabric care consumers, according to Mintel ([www.mintel.com](http://www.mintel.com)).

"Fabric care category sales [in the United States] have slipped steadily in recent years," the research firm recently noted. "Sales declined 7% between 2008 and 2013 to an estimated \$835 million, a decline of 15% on an inflation-adjusted basis."

According to market research group Datamonitor ([www.datamonitor.com](http://www.datamonitor.com)), "Three quarters of global consumers who are partly or completely responsible for household cleaning/laundry find it important or very important to live a less complicated lifestyle. They are therefore looking for shortcuts in their laundry tasks."

How laundry care products are reformulated or optimized to meet growing convenience demands will certainly affect how fragrances are built for them.

At the same time, key growth markets require unique solutions. For instance, Euromonitor notes that home appliance ownership in the Middle East and Africa is low compared to the rest of the world, meaning that cleansers and laundry care products are often applied by hand.

"Traditional oriental scents are enjoying growing popularity in laundry detergents in the Middle East and Africa," a 2012



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Euromonitor regional report notes. "They are an important part of the Middle Eastern and African culture, in particular oud, sandalwood and incense as these are associated with many religious rituals. Oriental fragrances are also associated with homely scents as they are traditionally used as welcoming aromas and women use them to perfume their clothes."

The traditional application of these scents is now migrating into consumer products, particularly in home care. According to Euromonitor, "fragrance in the Middle East and Africa will enjoy the strongest growth globally with volume sales increasing 30% between 2011 and 2016, albeit from a lower base."

Euromonitor adds, "Growing demand for more sophisticated scents among Middle Eastern and African consumers is creating new opportunities for complex, traditional, oriental scents. In order to gain market share, manufacturers should introduce new products featuring these fragrances. Consequently, if fragrance manufacturers want to increase their penetration of the Middle East and Africa, they could focus on developing their portfolios of oriental scents for manufacturers in laundry care."

## Perfumer Perspective: Performance, Price & Consumer Preference

The last decade has witnessed challenging fabric and home care markets, explains Firmenich master perfumer Gary Marr. However, he says, breakthroughs in new ingredients and in technologies to boost fragrance performance at each crucial point of the product use cycle are opportunities to design new fragrance experiences for consumer products.

“These days, for the fabrics and home care categories, fragrance engineering works hand in hand with fragrance creativity,” says Marr. “This has come about because of a more and more sophisticated and in-depth qualitative approach to fragrance and product consumer research.”

He continues, “Fragrance encapsulation and precursor technology has changed the way that freshness is delivered to products in the fabric and home care categories. Consumers can now experience longer lasting freshness. Freshness that previously was only perceived during a product’s early stages of use can now be appreciated through to its end.”

Marr adds that consumers are increasingly open to new and unique fragrance profiles in home and laundry care products, and that they have greater expectations of scents “at a subconscious level.”

He continues, “This is a great challenge for perfumers as we tread the fine line of delivering optimum performance at the right time and pushing the creative limits or boundaries of what will be accepted by the consumers in their products. This is partly driven by the availability of the technologies mentioned above, and partly by new ingredients such as Clearwood.”<sup>a</sup>

Marr adds, “These technologies, through either physical or chemical means, also help perfumers overcome many of the stability issues they face when creating for the more aggressive bases. Certain notes that could not be exploited previously now can.”

As a result, he says, there has been an increased focus on the development of fragrance materials that are “compatible with some of the more aggressive media”—for example, Centifoether<sup>b</sup>, which Marr describes as having “a fresh, delicate, but robust rosy note, with an incredible stability, even in bleach.”

Marr continues, “Cost and adherence to strict safety legislation often determine the choice and levels of ingredients used in new creations.”

He adds that consumer preferences vary by region, rewriting the parameters for desirable odor profiles.

“The heavier and more powdery woody notes can be seen as fresh in some markets, whereas in others they can be seen as too perfumistic and less desirable in some fabric and home care products,” says Marr. “In any market, the product, whether it’s a floor cleaner, a detergent or fabric conditioner, has to convey freshness. It’s knowing what combination of ingredients are considered fresh and how to exploit them through the fragrance that will ultimately determine if a product is successful.”

<sup>a</sup>Clearwood is a trademark of Firmenich; read more about this biotech-derived material in “2014 World Perfumery Congress Exhibition News & Notes” on Page 60 of the September 2014 issue of *P&F*; [www.perfumerflavorist.com/magazine/](http://www.perfumerflavorist.com/magazine/)

<sup>b</sup>Centifoether is a trade name of Firmenich; read more on Page 16 of the July 2013 issue of *P&F*



*“Almost all fabric softeners in Europe are now using capsules for the fragrance,” says perfumer Achille Riviello. “So the perfumer needs to be able to create for not only the fragrance that goes into the normal application, but also one that works with the capsules.”*

He cautions however, “Individual ingredients can never be assessed this way. It’s how the ingredient is used that is key. Clearwood, for example, is an outstanding ingredient as it can contribute to all the parameters, like cost efficiency, regulatory and impact in formulation. From a pure olfactive point of view, it contributes to a fresh profile of the fragrance when blended with the right complementary ingredients.”

Marr continues, “It is often what is left out of a fragrance—as much as what is put in—that determines the character and

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performance of the finished product, and whether it communicates the desired messages the consumers require. Clearwood has many of the characteristics of patchouli oil, but, and this is a big but, it differs by not having many of the less desirable notes that patchouli has. Therefore, I like to exploit this by gaining all the benefits of the patchouli-type note in the middle and base of the fragrance, helping with the long-lasting freshness (in some markets) of the product, without having the top notes that would be present if I used patchouli. These top notes can sometimes bring a less desirable old-fashioned feel to a fragrance or product. This can diminish the desirability with consumers and convey the wrong messages that the product needs to communicate.”

Marr says that this and other woody notes are “rarely the defining characteristic of a fragrance, but are always cleverly blended to support, warm or enhance the other notes within the fragrance. They also contribute to the required substantivity that the fragrance needs to convey.”



*"Fragrance encapsulation and precursor technology has changed the way that freshness is delivered to products in the fabric and home care categories," says perfumer Gary Marr.*

Today's new fragrance materials are the latest in a long line of ingredients that have evolved to meet cost, performance, regulatory and consumer preferences in home and laundry care perfumery.

Marr says, "In the past, perfumers have used ingredients such as patchouli oil, derambrene, Iso E Super, Vertofix Coeur and the like to build the woody character in home care and fabric care categories.<sup>c</sup> Now we start to see the use of the Limbanol-style notes, with Clearwood and Alaskan Cedar.<sup>d</sup> These really add a new dimension to the woody aspect of fragrances. [They are] much more difficult to use than the preceding ingredients, but if overdosed and skillfully blended, they can bring some novel and performing notes to fragrances."

Success in the future will rest as much on regulatory compliance as technical and creative innovation, necessitating ingredients that are high-performance/low-dosage and sustainable, says Marr, citing materials such as Z11, Neobutenone and tangerinal 10 DIPG.<sup>e</sup>

"As the legislation becomes tighter and the fragrance usage levels increase, this becomes ever more challenging," he explains. "This is especially so in the sectors which exploit very high levels of fragrance like air fresheners ... This means the perfumer has to ensure every ingredient he uses contributes to the overall performance of the fragrance."

Marr concludes, "These categories will continue to demand long-lasting and diffusive fragrances. This will put more pressure on perfumers' understanding of their ingredients and their interactions at much greater detail. It will encourage fragrance houses to develop technologies, new ingredients, and a better understanding of how the human nose perceives individual ingredients and mixtures of them."

## Laundry Care and New Ingredient Development

"Generally, [developing markets] are fast following the trends and technology of the West," says Achille Riviello, senior perfumer with PFW Aroma Chemicals B.V. "As with the other

segments and with perfumery in general, we see greater sophistication coming into the developing markets."

He adds that scents in developing markets have evolved from single-dimensional, one-note concepts to sophisticated, bouqueted fragrances.

At the same time, technology is cropping up in formulations. In markets such as India and Southeast Asia, Riviello says, microcapsules and other technologies are beginning to be applied, supporting advances in performance and hedonics.

He notes, "Some of the more developed [emerging] countries are on par [with the West], using technology with very strong, very performing, very interesting fragrances."

Riviello continues, "In the West we have more and more technologies entering into laundry care for substantivity and, in some cases, for bloom out of water. It's nothing new, it's just becoming more and more prevalent."

"I think consumers and clients look more for very strong, powerful and substantive fragrances in home care," says Ann Berilloux, perfumer, home and body care, at Takasago.

High-impact fragrance materials and microencapsulation will support this boost of substantivity, she adds. These materials must have no regulatory issues, Berilloux notes—including Scientific Committee on Consumer Safety R43 skin sensitizers, H410 acute environmental hazards (under EC No 1907/2006 and EC No 453/2010) and H411 (toxic to aquatic life with long-lasting effects)—which can be a challenge, particularly as some may come at a premium.

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"I think all applications will [eventually] have microencapsulation technology," she says, "so ... we will have to use only ingredients that are stable and efficient in this technology."

Riviello says, "In Europe you're seeing some of the [private label/own] brands really ramping up their fragrance performance and competing with the multinationals. They're realizing that that's where they need to be."

While private label/own brands cannot always compete with multinationals on technologies, they are able to contend on hedonics.

"That's a good selling point that helps them compete at a lower price point," says Riviello. "That's really what it's about now. The consumer expects that the product performs technically—you buy a product and it does what you expect it to do. Technically it's going to clean or soften your clothes. So it's becoming more and more about hedonics."

He adds, "There is sometimes more room for creativity in some of the flanker or own brands. Sometimes they go out a little bit from the norm just to be able to differentiate themselves a bit. Some of the more innovative marketing concepts in

<sup>c</sup>Iso E Super and Vertofix Coeur are trade names of IFF

<sup>d</sup>Limbanol and Alaskan Cedar are trade names of Firmenich

<sup>e</sup>Z11 and Neobutenone are trade names of Firmenich; read more on Page 16

fragrances are from the own brands because the multinationals don't want to take a risk.

How is this changing things for the perfumer?

“Certainly in the West the perfumer has to be able to create not only a good fragrance, but a good fragrance for the technologies that are in a particular product,” says Riviello. “Almost all fabric softeners in Europe are now using capsules for the fragrance. So the perfumer needs to be able to create for not only the fragrance that goes into the normal application, but also one that works with the capsules.”

He adds, “The big change over the last 10 years has been the capsules and what they can bring. Yes, you still need fragrances that are substantive on their own, but with capsules you can now get all kinds of different notes you weren't able to get before. You need to be able to provide a good base fragrance, but ... those technologies changed the game as far as what a fragrance is going to smell like in five days.”

In addition to hedonics and performance, pricing pressure is a constant factor.

“The pricing pressure over the last decade or so has tended

to move some of the musk-heavy fragrances out of the market a bit in favor of more woods and new ambers because of the [relative differences in] power and performance price ratio,” says Riviello. “You see these woods/ambers dominating in terms of substantivity.”

These technical and cost trends will continue to reshape the role of the perfumer, says Riviello. For example, perfumers formulating a scent for a fabric softener will have to consider its substantivity on the cloth, the character of the fragrance that will burst from the capsules and how those two scents will mix.

Riviello concludes, “There will be more need for the perfumer to be able to work in more technically challenging areas—not only just a fabric softener or detergent, but also to create for the capsules and technologies that go into them. That's a change in the way the perfumer has to think, sometimes. It's more multidimensional creation.”

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