



MYTHS & MISCONCEPTIONS

Understanding Fragrance-Free Personal Care

*Deciphering consumer perceptions about fragrance &
the growth of fragrance-free personal care products*



Johnson & Johnson

NMI /Johnson and Johnson Consumer Inc. Fragrance report

Myths and Misconceptions: Understanding Fragrance-Free Personal Care

Deciphering consumer perceptions about fragrance and the growth of fragrance-free personal care products

Abstract

The use of fragrance can be an important purchase driver in many consumer product categories, especially personal care. Fragrances and scents are thought to provide an emotional connection to a product and higher brand engagement. Over the last decade, increasing scrutiny of many ingredients has consumers expressing concern that fragrance compounds may be responsible for potential sensitivities or reactions and that they should be avoided. These perceptions are causing consumers to increasingly seek out products that are free of fragrances, and as a result, the fragrance-free product category has seen growing momentum for the last five years.

To gain insight on how this segment is evolving and what ingredients might be of true concern, Johnson and Johnson Consumer Inc. partnered with the Natural Marketing Institute on a multi-phase research project. The first phase, in 2015, provided insight into important attributes for personal care products and the role of fragrance. The datamining revealed fragrance issues were less important than efficacy, value, and brand trust. The second phase, presented here, set out to understand how and why shoppers choose fragrance-free, and to ascertain the prevalence of fragrance allergies and sensitivities and how much personal care products, with or without fragrances, are impacting these conditions.

The data confirms that there are broad misconceptions about fragrance ingredients and a lack of understanding about existing regulatory measures to restrict use of known allergens. Furthermore, the data suggests that current concerns about all fragrance compounds may be exaggerated by special interest groups who may lack an overall understanding of what really constitutes a fragrance compound. The findings confirm that many consumers are using products labeled as fragrance-free that actually contain fragrance ingredients, while few report adverse reactions.

These issues represent both challenges and opportunities for industry to provide better understandings of the connection between fragrance and sensitivity, more clarity on existing regulatory efforts, and additional transparency in labeling and marketing. Although there are both natural and synthetic ingredients that can cause allergies or sensitivities, there are also many safe and functional ingredients that can be enjoyed by a majority of consumers. It makes more sense to identify the problematic ingredients than to brand all fragrance compounds as suspect.

This paper provides:

- An overview of the fragrance-free market
- Project details and methodology
- Background on understanding fragrance in personal care products
- Insights into the gap between consumer perception and reality
- And a discussion of the findings.

Overview

The Fragrance-Free Market

Fragrances have been used for thousands of years to help create a strong and emotional connection to an experience or product. In fact, the word perfume is derived from the Latin word *fumen*, which is associated with the ancient custom of burning natural salves, herbs and oils during religious ceremonies.¹ More recently, scientists have debated and sought to prove the potential connections between particular scents and human mood^{2,3,4} and even our affinity for or recollection of brands.⁵ Our connections to fragrances are infinitely personal and complex.

The use of fragrance has become a key driver in purchasing decisions for many consumer packaged goods, particularly personal care products,⁶ and not surprisingly, their use in these products have been pervasive. However, the use of ingredients which evoke a scent in products may have also prompted a rise in human sensitivities and reactions in sensitive people, which has in turn bolstered awareness of certain fragrances as potential irritants. Coupled with growing consumer concern about the way the products are made and little understanding of existing manufacturing safeguards, public attitudes about fragrances have begun to change. At the same time, well-intentioned environmental and health care advocacy organizations have begun to flag these issues and are likely adding to consumer worry and confusion about possible human health concerns associated with all fragrances.

The result has been a proliferation of fragrance-free claims on personal care products and an increasing perception that they are a safer choice for all consumers. According to data from Mintel, between 2012 and 2017, there were 1,226 products launched with fragrance-free claims: 771 were classified as unfragranced; 431 did not have a fragrance specified; and the information was unavailable for 24 products.

Though the category is growing in relevance, there is also a lot of confusion about fragrance ingredients and what might actually be of concern or causing reactions. It is little wonder there is confusion. First, there is not much distinction between fragrance allergies and fragrance sensitivities and the symptoms for both can be very similar. In simple terms, a fragrance can be an irritant and cause reactions ranging from headaches, nausea, rashes, blisters and other symptoms associated with

allergies, such as burning or watery eyes and congestion. For most people the symptoms decrease as the irritant is eliminated. This is generally classified as sensitivity. A true allergic reaction, however, will cause the immune system to react and trigger inflammation, for example, which can then result in similar symptoms.⁷ According to the European Commission's Scientific Committee on Consumer Safety (SCCS), a skin allergy will result when a minimum amount of the fragrance substance penetrates the skin and attaches to a protein to provoke an immune reaction.

It is important to note that some fragrance ingredients, both natural and synthetic, can be highly allergenic and are usually avoided in some product formulations. However, many products labelled as fragrance-free may actually contain fragrance ingredients and potential allergens through the use of natural essential oils or extracts of plant-based raw materials. With poor regulatory clarity for fragrance-free and growing use of terms like organic and natural, consumer confusion about fragrance ingredients is now higher than ever and a topic of interest in socially driven communications.

To understand these perceptions and gain insight on what ingredients may be of true concern, Johnson and Johnson collaborated with the Natural Marketing Institute (NMI) in a multi-phase project. Phase One involved mining NMI data with deep knowledge of the personal care market and perceptions about fragrances. The research found that the most important attributes for personal care products center on efficacy, value and trust. Fragrance issues were less important and only for a minority of the general population; however concern was growing.

Phase Two, presented here, involved a primary consumer survey among those who are actively seeking fragrance-free products. This phase set out to understand the prevalence of fragrance sensitivities and allergies and how much these products may be impacting the conditions. The study looked at the criteria consumers use to make fragrance-free product purchases, if fragrance-free is a significant determinant in length and frequency of product use, and specifically why respondents believed a product was fragrance-free.

The findings reiterated that misconceptions about fragrance and allergens are widespread and confirms that many consumers are using products labeled as fragrance-free that in fact contain fragrance ingredients, with few experiencing skin type reactions or complaints. The data suggests that current concern about many fragrance ingredients may be too extreme and unfounded, and indicates the need for more research to identify true allergens and labeling standardization to ensure effective consumer education. This effort will help clarify marketing terms and claims used on fragrance-free products and potentially lead to consumers making better informed decisions about the personal care products they choose to use.

Project Methodology

NMI recruited 149 consumers who indicated that “fragrance-free” played a significant role in their purchase of personal care products. Among these respondents, 89% self-identified as having fragrance sensitivity, while 11% said they had a fragrance allergy diagnosed by a medical doctor. It is important to note that due to the small sample size of this study, the information gleaned should be used cautiously with the understanding that many learnings are more qualitative in nature than quantitative.

Once recruited, respondents were asked to take pictures of up to 10 personal care products in their household that they believed were fragrance-free. They then uploaded the pictures into the survey and were asked to answer the following questions:

1. If they believed the product was fragrance-free.
2. To identify from a large list of criteria, the top three criteria that were most important when choosing each product.
3. How long they have been using the product.
4. How frequently they used the product.
5. If they mentioned in question 1 that they believed the product to be fragrance-free, specifically why they believed the product was fragrance-free.

Respondents were also asked to define what they believe it means for a product to be fragrance-free from a list of criteria. Additionally, those respondents who self-identified as having a fragrance allergy diagnosed by a doctor were asked to clarify how their diagnosis was achieved, i.e., by testing or symptoms.

Once the surveys were completed, NMI identified and coded all ingredients in each product using UPC information. The data was aggregated in a spreadsheet that allowed analysts to filter data by product category, brand, SKU, etc.

Among all ingredients found in consumer uploaded products, scientists and experts cross referenced and identified all ingredients which could be classified as a fragrance component, ingredient, or source. NMI then coded all products to determine how many products were truly fragrance-free and how many products contained at least one known fragrance ingredient.

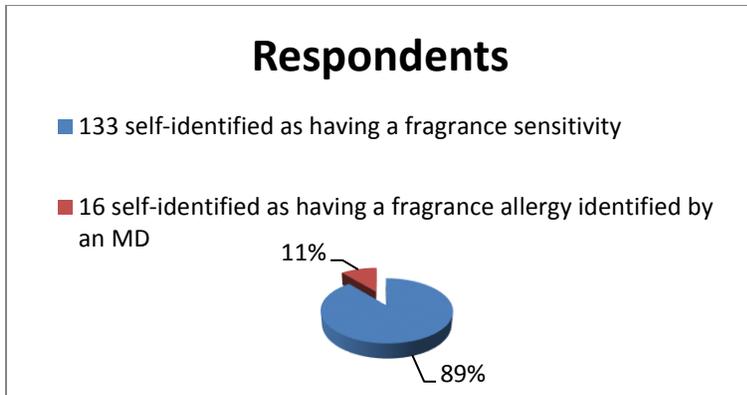
Respondent profile



149 respondents completed the survey



558 total personal care products were uploaded



Of the 11% who had been diagnosed with a fragrance allergy:

- 6 indicated they had skin testing
- 5 indicated they were diagnosed based on symptoms
- 3 indicated elimination testing (stopped using certain products under MD supervision)
- 2 indicated other

Understanding Fragrance and Personal Care Products

The Fragrance-Free Consumer--Perception and Reality:

Fragrance free appears to be a personal care purchase driver for a small but notable segment of the general population, according to findings from phase one of the NMI/J&J project, but the importance of this attribute will likely continue. According to NMI's 2017 Sustainability Consumer Database, within personal care products, free from synthetic fragrances is very important to 27% of consumers. Fragrance free is important to 29% of consumers. And while one in four of the general population indicate they experience fragrance sensitivity or a doctor diagnosed fragrance allergy, the actual diagnosed incidence in the general population is in the low single digits. Key takeaways from the initial research suggest that consumers who believe fragrance-free is very important are more likely to be concerned about unknown/hard to understand ingredients in products and willing to pay a premium for products perceived as healthier and potentially more environmentally friendly. They are also more inclined to link chemicals in products to childhood disease and perceive environmentally friendly products as healthy.

Label Definitions

For the purpose of this report, here are some basic label definitions used by organizations as noted below but not necessarily legal definitions or standards as might be provided by an international body such as the International Fragrance Association (IFRA):

Fragrance-free and Un-fragranced Products: Implies that no artificial fragrance has been added to the product. Also used when a product is stated to be unscented, un-fragranced, or perfume-free.*

Unscented Products: A product may contain a compound classified as a fragrance by the International Nomenclature of Cosmetic Ingredients (INCI), a standardized list established by the European Commission and used as a masking agent.

Masking agent: Products labeled as fragrance-free or unscented may still contain fragrance compounds called masking fragrances. Their job is to disguise odors that naturally occur in a products.**

*Mintel

**National Eczema Association

Key Study Findings

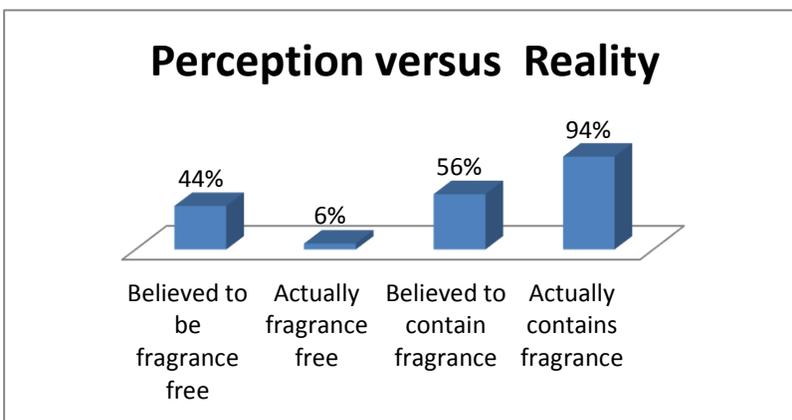
The purpose of phase 2 was to determine how respondents define fragrance-free products, what criteria they use in choosing personal care products, what specifically makes them believe a product is fragrance free, and how much impact the concept of fragrance-free has on their purchasing decisions.

Confusion reigns

Most notably, the survey indicates a significant chasm between what products consumers believe to be fragrance free and what products actually are free of fragrance.

Of the 558 total products included in the study,

respondents believed that 245 (44%) were fragrance free. In reality, 84% of the total products contained at least one fragrance ingredient. Only 31 products (6%) were identified as having no known fragrance. The 31 products were reported by 26 respondents, so 17 percent of the respondents (or 26 people) submitted a no-known fragrance product.



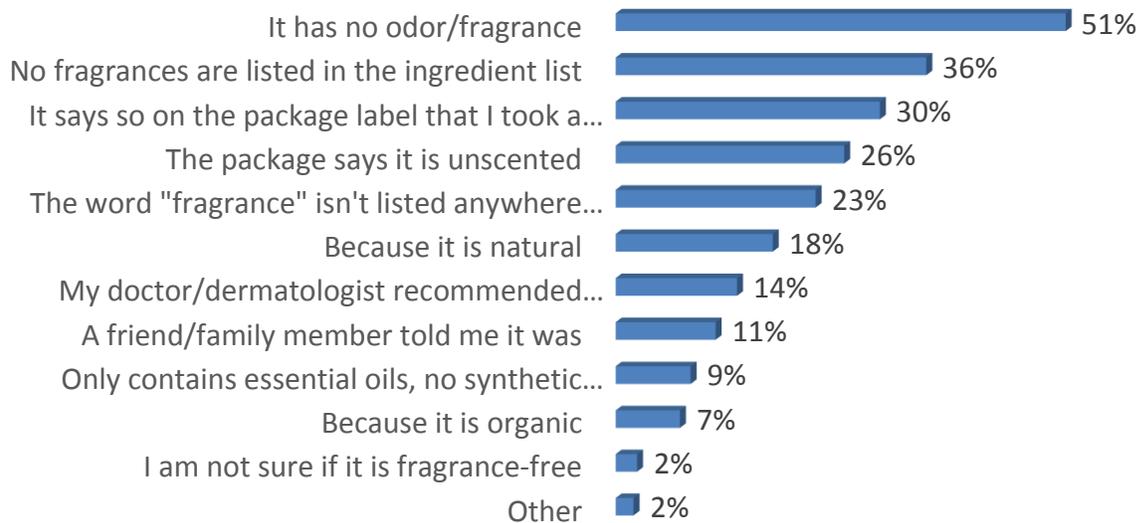
The discrepancy was less distinct for products believed to contain fragrances. Of the 313 thought to have a fragrance ingredient, 94% did indeed contain a fragrance, while five were thought to contain a fragrance, but in fact did not.

These findings underscore the prevalence of consumer confusion about products and fragrance. In addition, they confirm that many consumers are using products with fragrance ingredients despite having a real or perceived fragrance sensitivity or allergy.

Choosing Fragrance-Free Products: The nose is not enough

While some consumer confusion about fragrance ingredients may be attributed to false or misleading marketing or claims, consumers also admit to faulty methods for selecting products that are free of fragrance.

I believe this product is fragrance free because...



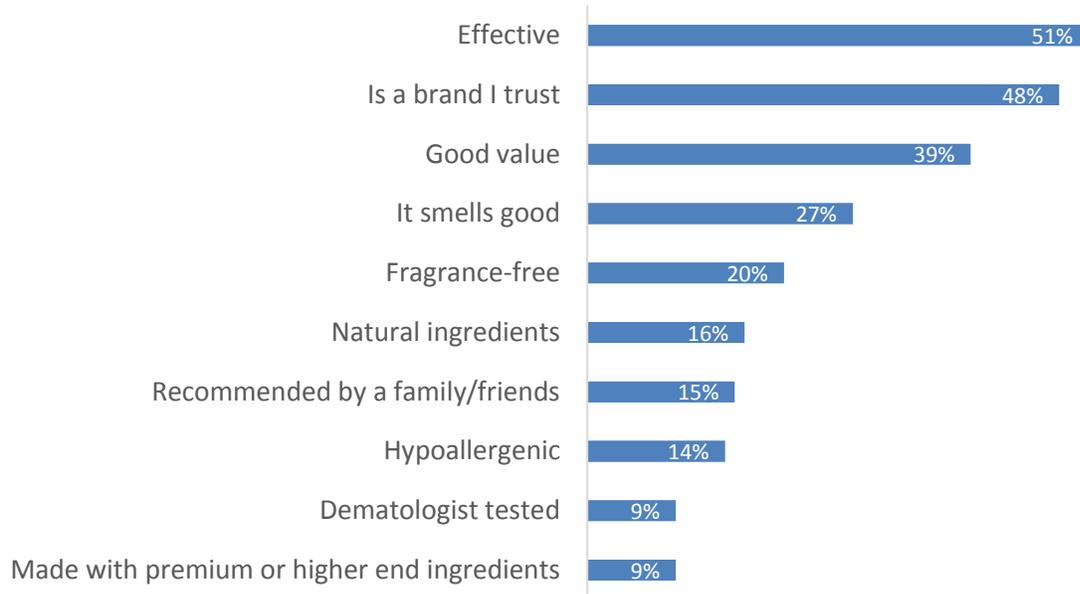
Fragrance-free as a purchase driver

While concern about fragrance ingredients may have some momentum overall, the new data reiterates that fragrance-free is not a key attribute for most consumers in choosing personal care products. Across

all 558 products consumers provided, it ranks as a top criteria only 20% of the time, with attributes like brand trust and efficacy consistently outranking fragrance-free. Even among respondents who believe a product is fragrance-free, the attribute is cited as a top purchase driver less than half of the time, even among those who believe they have fragrance sensitivity.

Percent of groups indicating from the list below, the TOP 3 criteria that are very important to their decision to purchase the product

All Products (N=558)



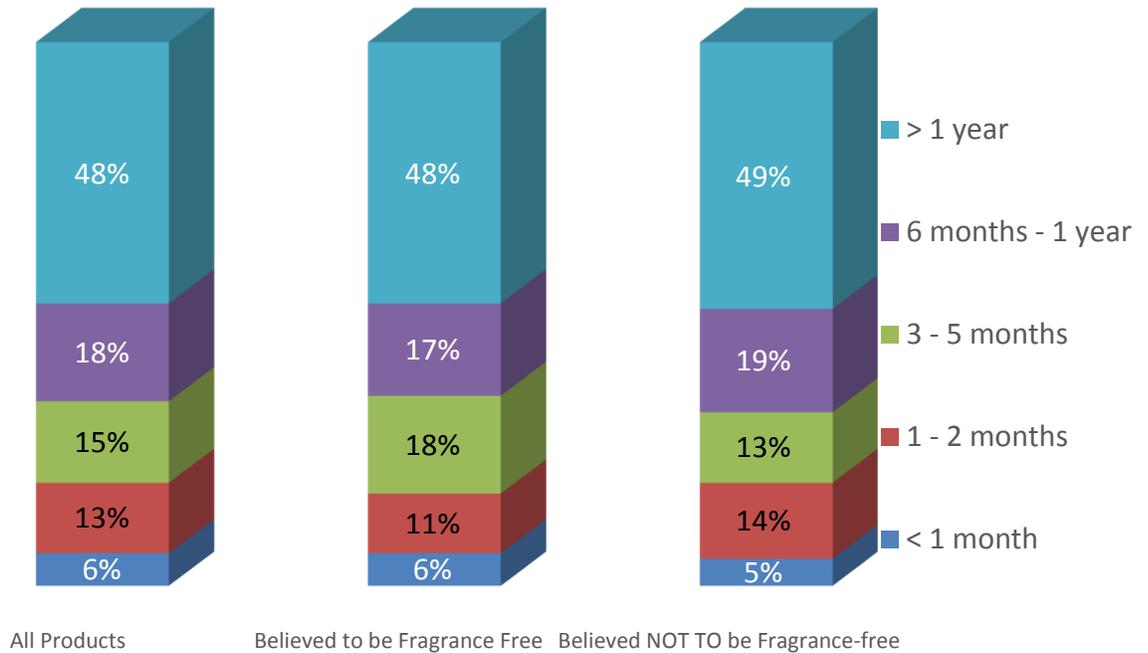
Percent of groups indicating from the list below, the TOP 3 criteria that are very important to their decision to purchase the product

Products believed to be fragrance free (N-245)



Fragrance also has little impact on how long consumers typically use a product.

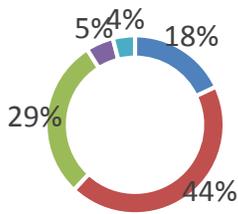
How long respondents have been using the product?



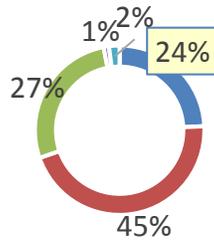
However, the presence or lack of fragrance does seem to make some difference in how frequently products are used, with consumers more likely to use those believed to be fragrance-free several times a day possibly increasing exposure to those who are truly sensitive or allergic. It should be noted here that this is likely not a huge public health issue given the relatively small number of products (6%) of those believed to be fragrance free were really fragrance free, and that some others were doctor recommended.

How frequently they use the product?

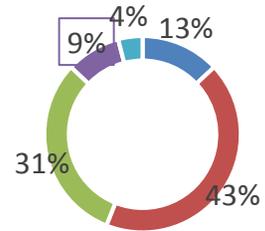
All Products



Believed to be *fragrance-free*



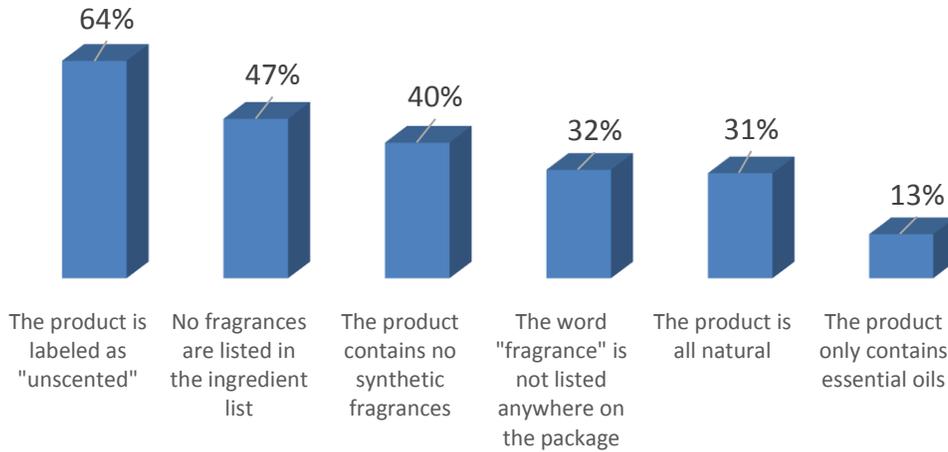
Believed to **NOT** be fragrance-free



■ Several times a day
 ■ Once a day
 ■ A few times a week
 ■ Once a week
 ■ Less than once a week

Labeling does play a role in consumers' definitions of fragrance-free products, but may not be clearing up the confusion.

Which of the following attributes would you include in your definition of fragrance free?



Some of the fragrance ingredients found in fragrance-free or sensitive skin products

Fragrance Ingredient	Derived from	Found in...	Other names	Concerns	IFRA restricted*
Farnesol	Acacia flower	essential oils from lemon grass, rose and musk	dodecatrienol	Associated with allergies and contact dermatitis	no
Cinnamyl Alcohol	Ester in natural fragrances like Balsam of peru, cinnamon leaves, hyacinth oil	perfumes, cosmetics, deodorants	styrone, styryl alcohol	Known human immune system toxicant or allergen	yes
Geraniol	Constitutes a large portion of rose and palmarose oil	naturally occurring scent found in essential oils such as rose oil and citronella oil	geraniol alcohol, Guaniol	Known human immune system toxicant or allergen	yes
Hydroxycitronellal	Citronellal is a major isolate in distilled oils from the plants <i>Cymbopogon</i> lemon-scented gum, and lemon-scented teatree.	Produced synthecially from naturally occurring scent chemical citronellel	Citronellal hydrate, 1,7 Octanediol	Known human immune system toxicant or allergen	yes
Linalool	<i>Linalool</i> is a naturally occurring terpene alcohol chemical	found in many flowers and spice plants	Linalool essential oil, linalyl alcohol	Possible human immune system toxicant or allergen	Yes

****IFRA (the International Fragrance Association) Standards forms the basis for the globally accepted and recognized risk management system for the safe use of fragrance ingredients and are part of the IFRA Code of Practice. This is the self-regulating system of the industry, based on risk assessments carried out by an independent Expert Panel.***

The Complex Nature of Fragrances

These findings indicate there is a significant gap between the numbers of consumers who seek to purchase fragrance-free products and those who have diagnosed fragrance sensitivities and allergies. A fragrance allergy is the second most common cause of allergic skin reactions and recent studies suggest that about 10% of the general population will have an adverse reaction to a cosmetic product.⁸ A review of fragrance allergies by the European Union’s Scientific Committee on Cosmetic Products and Non-Food Products (SCCFNP) suggested that one in 50 people may be sensitized to fragrances and that these

List of 26 Fragrance Allergens Designated by the European Union

Alpha isomethylionone
Amyl cinnamal
Amylcinnamyl alcohol
Anisyl alcohol
Benzyl alcohol
Benzyl benzoate
Benzyl cinnamate
Benzyl salicylate
Butylphenyl
methylpropional (Lilial)
Cinnamal
Cinnamyl alcohol
Citral
Citronellol
Coumarin
Eugenol
Farnesol
Geraniol
Hexyl cinnamal
Hydroxycitronellal
Hydroxyisohexyl 3-
cyclohexene
carboxaldehyde (Lylal)
Isoeugenol
Limonene
Linalool
Methyl 2-octynoate
Evernia furfuracea
(Treemoss) extract
Evernia prunastri
(Oakmoss) extract

Source: EC Scientific Committee on
Consumer Safety

http://ec.europa.eu/health/scientific_committees/opinions_layman/perfume-allergies/en/l-3/1-introduction.htm

issues may be on the rise.^{9,10} Symptoms of these reactions can range from mild (rash and redness) to severe (asthma attack or anaphylactic shock) and once sensitized, a patient may remain so for the rest of their life.

While this information is extremely important for consumers who have a diagnosed allergy, it is also relevant to note that this is still a small percentage of consumers. Fragrance industry data suggests that allergies to fragrance is present in less than 2% of the general population.

In addition, Doctors are mixed as to whether these problems are sensitivities or a true allergy. Sensitivity is a vague term. It is generally thought that allergens will engage the immune system, while an irritant does not. Most dermatologists do agree that eczema or contact dermatitis set off by fragrances is truly an allergy, although it is considered rare, at about 1 in 250 people.¹¹

Common ingredients that may cause reactions include those of synthetic, natural, and botanical origin, such as arnica, amyl cinnamal, benzyl alcohol, balsam of Peru, citronella, eugenol, fever few and tea tree oil. There are existing measures to identify these ingredients and inform consumers. In 1999, the SCCNFP in the European Union identified 26 fragrance allergens, including geraniol, linalool and eugenol, which now must be declared when they occur at 0.001% in a leave-on product or at 0.01% in a rinse-off product in products marketed in the EU. Further, Europe's Scientific Committee on Consumer Safety (SCCS) guidance is designed to help protect consumers who already have an allergy (similar to FDA limits in establishing gluten-free products). Consumers can safely use the products below SCCS limits.

Fragrances are generally classified in three groups: natural, naturally derived/modified, and synthetic. There is a broad perception and belief that natural ingredients and fragrances are non-allergenic; however, this is simply not true. Some of the most potent allergens come from nature and even if you consider the SCCFNP list, 25 of 26 are naturally occurring. Natural fragrances often contain a mixture of compounds produced via the natural biosynthetic pathways for phenylpropanoids, fatty acid derivatives, and terpenoids, and these natural fragrance ingredients are generally obtained from essential oils and aromatic natural materials produced with physiochemical isolation.¹² Naturally derived or modified compounds are produced with additional chemical reactions of natural fragrances. Synthetic fragrances are usually derived from petroleum and include benzene derivatives and aldehydes.

There is also a general misconception that fragrance ingredients are not regulated. Most fragrance ingredients are used in cosmetics and regulated as such by FDA under the Food, Drug and Cosmetic Act. However, some products fall into other categories and may be regulated based on their intended use. For example, essential oils used in a massage oil intended to lubricate the skin, would be considered a cosmetic, but if it was marketed to relieve aches, it might be seen as both a cosmetic and a drug.¹³

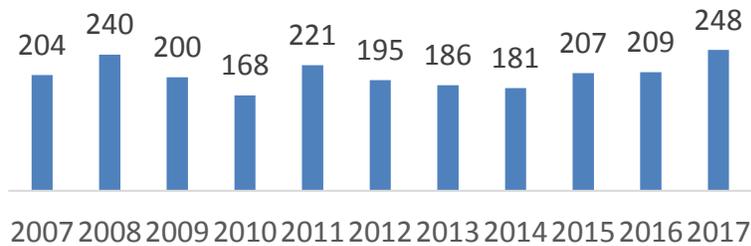
In addition to the official regulations, there are several fragrance self-regulatory programs, such as the International Fragrance Association's (IFRA) code of practice and safety standards; the Research Institute of Fragrance Materials (RIFM), which analyzes scientific data, tests and evaluates fragrance ingredients to promote safety standards; and the Personal Care Product Council's International Nomenclature Cosmetic Ingredient (INCI) list, which supports identification of the composition of personal care products with a list of systematic names to identify ingredients.

Because fragrance manufacturers often keep the exact composition of their formulations proprietary, and many fragrance blends include hundreds of compounds, it is difficult to understand what allergens they may actually contain in the U.S. Therefore, getting to the root of what causes a reaction is often difficult.

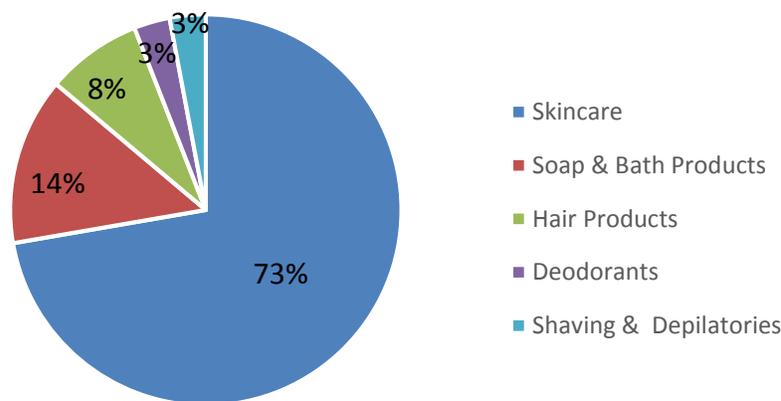
Natural ingredients also offer no guarantee of being non-allergenic. A recent study from *Environmental Sciences Europe* noted that natural substances are multi-constituent compounds that can contain allergenic ingredients that are not disclosed on ingredient lists and that recommendations for sensitive skin in a product's name was no guarantee that the 26 identified fragrance allergens were not in the product.¹⁴

IFRA estimates that fragrance allergen patients have been growing steadily for about 20 years. Such reactions are partly behind consumer scrutiny on personal care products. According to the 2016 Label Insight Transparency ROI Study, consumers now want both food and personal care products to be completely transparent about their formulas, providing complete ingredient breakdown and sourcing information.¹⁵ This attention prompted 16% growth of products labelled as natural and that contain no artificial fragrance in 2017,¹⁶ and Mintel data (shown below) illustrates steady growth in fragrance-free product launches since 2014.

“Fragrance-Free” Personal Care Introductions



Source: Mintel



Source: Mintel

The cosmetic and personal care industry has been very responsive to these consumer demands, but definitions and regulatory oversight of these products may still need to catch up with the growing demand as well as true consumer need.

Discussion: Finding a Middle Ground

Growing incidence, awareness, and hypothetical fear regarding fragrance sensitivities and allergies is driving an increasing interest in use of personal care products without fragrances or synthetic ingredients. However, as noted in the findings of this study, it is only a top purchase driver for a small segment of consumers. Further, many are using products which they believe to be fragrance-free, when in actuality they are not. A significant number of respondents self-identified as having fragrance sensitivity, but only about half of the remaining 11% were diagnosed by a doctor using skin testing, an important benchmark in accurately identifying reactions. What’s more, some consumers acknowledge that despite having a fragrance sensitivity/allergy, they still knowingly purchase products with fragrance and did not report allergies or intolerances.

These disparities leave personal care manufacturers and product formulators with a conundrum. Though some healthcare professionals and miscellaneous consumer advocates recommend the use of only fragrance-free products, the understanding of formulas with complex ingredient names and the use of ingredients, such as essential oils and botanical extracts, can confuse and potentially mislead consumers. This is particularly important when someone has a true diagnosed fragrance allergy/sensitivity and is only looking for the word fragrance or *parfum* on the label.

We believe these findings underscore the need for the following measures:

Research Across the Board

First, more research is needed to help understand and identify allergens, with additional scientific rigor to determine safe levels of key ingredients. Additional diagnostic criteria would also be helpful to provide distinction between allergens and irritants and would help both physicians and consumers better understand these conditions. Further market research would also elucidate consumer concerns and needs regarding fragrance-free products with emphasis on issues for those with true allergies.

Continued Industry Self-Regulation

More industry compliance to existing self-regulatory program will keep the effort in the hands of those with the expertise. Adherence to INCI standards for labeling with uniform ingredient terminology may provide more consistency and transparency to consumers and healthcare professionals looking to avoid particular allergens. The EU is moving ahead with its Cosmetic Directive, which requires that all cosmetics must display complete ingredient lists to help users identify ingredients to which they are sensitive and requires use of standard INCI ingredient names.¹⁷ It is likely that other regions will follow the EU's lead.

Downstream Education

More precision is needed for marketing terms and claims used on fragrance-free and unscented products. And manufacturers and brands must make a stronger effort to educate consumers and be transparent about the ingredients in their products.

In conclusion, it's time to stop looking for sensitivities and allergies that aren't there and demonizing all fragrance ingredients. Many consumers like fragrance in their products, so it doesn't make sense to eliminate use of safe and functional ingredients that work and are enjoyed by the vast majority of consumers. It does make sense to spend more time in identifying truly problematic ingredients and otherwise clearly labeling those that may cause sensitivities or allergic reactions.

NMI is a strategic consulting, market research, and business development firm specializing in the health, wellness, and sustainability marketplace. For more information on NMI's services or proprietary research tools, contact MaryEllen Molyneaux at maryellen.molyneaux@nmisolutions.com or visit www.NMIsolutions.com.

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