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Fragrance

Many products list “fragrance” on the label, but very few name the specific ingredients that make up a “fragrance.” This lack of disclosure prevents consumers from knowing the full list of ingredients in their products.



While most fragrance chemicals are not disclosed, we do know that some are linked to serious health problems such as cancer, reproductive and developmental toxicity, allergies and sensitivities. Clearly, there is a need for stronger regulations, more research, and greater transparency.

WHAT IS FRAGRANCE?

Fragrance is defined by the FDA as a combination of chemicals that gives each perfume or cologne (including those used in other products) its distinct scent. Fragrance ingredients may be derived from petroleum or natural raw materials. Companies that manufacture perfume or cologne purchase fragrance mixtures from fragrance houses (companies that specialize in developing fragrances) to develop their own proprietary blends. In addition to “scent” chemicals that create the fragrance, perfumes and colognes also contain solvents, stabilizers, UV-absorbers, preservatives, and dyes.

These additives are frequently, but not always, listed on product labels. In contrast, the chemical components in fragrance itself are protected as trade secrets and described on the label only as “fragrance.”

In other personal care products, fragrances that are added also include the combination of ingredients that give the product a scent and that stabilize the scent. These are typically only indicated by the term “fragrance” or “parfum.”

Found In

- Most personal care products including sunscreen, shampoo, soap, body wash, deodorant, body lotion, makeup, facial cream, skin toner, serums, exfoliating scrubs and perfume

What to look for on the label

- Fragrance
- Perfume
- Parfum
- Essential oil blend
- Aroma

Health Concerns

The International Fragrance Association (IFRA) lists 3,059 materials that are reported as being used in fragrance compounds.^[1] Of these 3,059 ingredients, some have evidence linking them to health effects including cancer, reproductive toxicity, allergies and sensitivities.

A 2016 study assessed self-reported health effects from fragrance. This survey of a random sample of US residents found that 99.1% of participants are exposed to fragranced products at least once a week from their own use, others' use, or both. Participants also reported an extensive list of health effects experienced when exposed to fragrance ranging from migraines and asthma to gastrointestinal problems and cardiovascular problems. The findings showed that a high percentage of the participants did not know of the chemicals included in fragrance and would not continue to use a fragranced product if they had previously known it emitted pollutants.^[2]

Acetaldehyde: Acetaldehyde adversely affects kidneys and the reproductive, nervous and respiratory systems.^[3] This chemical is listed as known or suspected to cause cancer in California's Proposition 65.^[4] Both the International Agency for Research on Cancer and the National Toxicology Program classify acetaldehyde as potentially carcinogenic to humans.^{[5][6]}

Benzophenone: Benzophenone is linked to endocrine disruption and organ system toxicity,^[7] and experimental studies suggest benzophenone may lead to several kinds of tumors.^[8] Derivatives of benzophenone, such as benzophenone-1 (BP-1) and oxybenzone (BP-3), are potential endocrine disruptors.^[9] Benzophenone is listed as a possible human carcinogen under California's Proposition 65.^[10]

Butylated hydroxyanisole (BHA): Studies demonstrating BHA's potential to disrupt endocrine functioning led the European Commission on Endocrine Disruption to list BHA as a Category 1 priority substance.^{[11][12]} This chemical is also listed as a carcinogen on California's Proposition 65.^[13]

Butylated hydroxytoluene (BHT): BHT irritates the eyes and skin and may adversely affect one's growth rate and liver.^[14] The American Conference of Governmental Industrial Hygienists (ACGIH) has determined that there is moderate evidence that BHT is a human respiratory irritant.^[15]

Benzyl Salicylate: Benzyl salicylate is a fragrance allergen and a potential endocrine disruptor.^{[16][17]} The European Union restricts its use and requires that it is listed on product labels.^{[18][19]}

Benzyl Benzoate: benzyl benzoate is a skin and eye irritant and may severely irritate, burn and sting the genitalia and scalp.^[20] The European Union requires that it is listed individually on products and restricts quantity use.^[21]

Butoxyethanol: Butoxyethanol is a skin, eye, nose and throat irritant. Exposure can lead to blood in the urine, vomiting and nausea with long-term damage to the kidneys, liver, lymphoid system, nervous system, respiratory system and blood cells.^[22] Butoxyethanol is also a reproductive toxicant. The International Agency for Research on Cancer confirms the carcinogenicity of butoxyethanol in experimental animals.^[23] Both the European Union and Canada restrict butoxyethanol in consumer products.^{[24][25]}

Butylphenyl methylpropional: Also known by its brand name Liliol, butylphenyl methylpropional is a scent chemical restricted in the European Union.^[26] Its potential for dermal sensitization motivated the International Fragrance Association to also restrict its use in fragrance products.^[27]

Chloromethane (methyl chloride): Chloromethane can have both acute and chronic effects on the nervous system and also adversely impacts the liver, kidneys and skin.^[28] It is listed under California's Proposition 65 as a developmental toxicant.^[29]

Dichloromethane (methylene chloride): Dichloromethane is linked to mammary gland tumors in experimental animals^[30] and may be an occupational carcinogen.^[31] It is reasonably anticipated to be a human carcinogen according to the National Toxicology Program^[32] and possibly carcinogenic to humans according to the International Agency for Research on Cancer.^[33] Its use in fragrance products is restricted by the European Commission and prohibited by the U.S. Food and Drug Administration.^[34]

Diethyl phthalate (DEP): DEP is an irritant of eyes, skin and the respiratory tract. It is a potential endocrine disruptor and has been linked to reproductive and nervous system toxicity.^{[35][36]}

Essential Oil Mixtures: Despite being fragrance ingredients of 'natural origin,' some essential oils are allergens and their allergenicity is no different than synthetic fragrance ingredients.^[37] The FDA treats essential oil ingredients the same as other personal care product ingredients.^[38] The International Fragrance Agency restricts citrus oils and other plant-derived organic chemicals containing essential oils due to their phototoxic effects.^[39] Essential oils may contain ingredients such as pulegone or methyleugenol that may be carcinogenic and alter endocrine functioning.^{[40][41][42]}

Eugenyl methyl ether (Methyleugenol): It can affect multiple endocrine systems^[43] and induce mammary gland tumors in experimental animals.^[44] Methyleugenol is a naturally occurring substance used in essential oils. It is a possible human carcinogen according to California's Proposition 65,^[45] the National Toxicology Program,^[46] and the International Agency for Research on Cancer.^[47]

Formaldehyde: Authoritative entities on chemical hazards agree that formaldehyde is a known human carcinogen.^{[48][49]} It is banned in cosmetics and toiletries in Japan and Sweden while the European Union and Canada restricts its use.^{[50][51]} California's Proposition 65 states that in its gas form, formaldehyde is a probable carcinogen.^[52] In occupational settings, formaldehyde is a cancer hazard and immune system sensitizer.^[53]

MEA, DEA, TEA – ethanolamines: When ethanolamines are used in the same product as certain preservatives that break down into nitrogen, they can form nitrosamines. Nitrosamines are a class of more than a dozen different chemicals, which the International Agency for Research on Cancer lists individually as possible and known carcinogens.^[54] The National Toxicology Program Report on Carcinogens lists 15 individual nitrosamines as reasonably anticipated human carcinogens.^[55]

Methanol: Methanol is a developmental toxicant according to California's Proposition 65,^[56] and the European Union has concentration restrictions of methanol in cosmetics.^[57]

Oxybenzone (BP-3): This UV-filter is a derivative of benzophenone and a potential endocrine disruptor.^[58] Oxybenzone can accumulate in the blood, kidneys and liver and may be toxic to liver cells.^{[59][60]} The European Union restricts oxybenzone at up to 10 percent maximum concentration in cosmetics.^[61]

Propyl paraben (Propyl p-hydroxybenzoate): Propyl paraben is a possible endocrine disruptor.^[62] Denmark banned propyl paraben and other paraben forms in cosmetic products for children up to 3 years old,^[63] which then motivated the European Commission to implement restrictions reducing the concentrations of propyl paraben in cosmetic products.^[64]

Resorcinol: Resorcinol changes liver, kidney and spleen functioning and adversely affects the cardiovascular and nervous system.^[65] The European Commission lists this chemical as a Category 1 endocrine disruptor,^[66] and the European Union restricts concentrations and requires labeling of products that contain these chemicals.^[67] In Japan, the form Resorcin is banned in all types of cosmetics.^[68]

Styrene: Styrene can be toxic to red blood cells and the liver when taken orally and toxic to the central nervous system when inhaled.^[69] It is reasonably anticipated to be a human carcinogen^{[70][71]} and is a Category 1 endocrine disruptor in living organisms according to the European Commission.^[72]

Synthetic Musk (Tonalide, Galaxolide, Musk Ketone, Musk Xylene): These chemicals are used in fragrances and added to personal care products. Synthetic musks are highly bioaccumulative and have been detected in breast milk, body fat, and the cord blood of newborn babies.^{[73][74][75][76]} Studies show that these compounds may disrupt hormone systems^{[77][78][79][80][81]} and may be reproductive,^{[82][83]} development,^{[84][85]} and organ system toxicants.^{[86][87]}

Titanium dioxide (TiO2): Inhalation exposure can damage lungs and the respiratory system. TiO2 may be an occupational carcinogen^[88] and is listed as carcinogenic on California's Proposition 65.^[89] The International Agency for Research on Cancer also lists this chemical as a possible human carcinogen.^[90]

1,4-Dioxane: 1,4-dioxane is a by-product of a process to make other chemicals less harsh. Because it is a contaminant produced during manufacturing, the U.S. FDA does not require 1,4-dioxane to be listed as an ingredient on product labels. However, this chemical is known or suspected to cause cancer or birth defects according to California's Proposition 65.^[91] The International Agency for Research on Cancer lists this chemical as possibly carcinogenic to humans while the National Toxicology Program categories 1,4-dioxane as reasonably anticipated to be carcinogenic to humans.^{[92][93]}

Our own product testing revealed the presence of two chemicals ethylbenzene and vinyl acetate in products marketed to kids. These ingredients were not listed on labels, leading us to suspect they may have been used in fragrance. These chemicals are not on the IFRA list of fragrance ingredients, but our 2016 report shows that these possible carcinogens could be lurking in personal care products and kids cosmetics.^[94]

Ethylbenzene: Ethylbenzene is a volatile organic compound that has been classified by the International Agency for Research on Cancer as a possible carcinogen.^[95] It is also listed on California's Proposition 65 list of known carcinogens to cause cancer.^[96] Ethylbenzene is mainly used in the manufacture of styrene.^[97] It is also used as a solvent, as a constituent of asphalt and naphtha, and in fuels.^[98] Short-term exposure may result in respiratory effects, such as throat irritation and chest constriction, irritation of the eyes, and other effects such as dizziness.^[99] Inhalation over time has shown conflicting results regarding its effects on the blood.^[100]

Vinyl acetate: Vinyl acetate is primarily used as a monomer in the production of polyvinyl acetate and polyvinyl alcohol.^[101] It is also used as a raw material in the production of other chemicals, adhesives, water-based paints, nonwoven textile fibers, textile sizing's and finishes, paper coatings, inks, films, and lacquers.^{[102][103]} Vinyl acetate is listed by the International Agency for Research on Cancer as a possible carcinogen.^[104] Short-term inhalation exposure has resulted in eye irritation and upper respiratory tract irritation.^[105]

Vulnerable Populations

Babies & Children (<https://www.safecosmetics.org/population/babies-children/>), Pregnant Women (<https://www.safecosmetics.org/population/pregnant-women/>).

Regulations

Current laws do not provide the FDA with the authority to require disclosure or public safety of fragrance ingredients. In the U.S., companies are required to list ingredients on the label; however, this regulation excludes the individual constituents of fragrance in order to preserve fragrance trade secrets. This sustains a loophole that leads to disclosure gaps.

The International Fragrance Association (IFRA) and the Research Institute for Fragrance Materials (RIFM) develop and set voluntary standards for chemicals in the "fragrance" component of products. The US, Canada, and Europe rely on IFRA and RIFM to identify ingredients for use in fragrance. In effect, this means the international Fragrance industry is self-regulating.

How to Avoid?

Read labels and avoid products when no information is given other than "fragrance."

FAQs

What does fragrance mean?



What are the main ingredients of a fragrance?



How can I find the fragrance ingredients or the chemicals in a product?



Which products have fragrances?



How do I know that a product has a fragrance?



Why are fragrances used in personal care products?



How many ingredients are used in a fragrance?	+
Are there any health concerns from the materials used in the fragrance?	+
What are the materials that I should avoid?	+
What are the side effects of Acetaldehyde?	+
What is Benzophenone and how dangerous can it be for us?	+
How does BHA affect our health?	+
What is Butylated hydroxytoluene?	+
What are the side effects of Benzyl Salicylate?	+
What are the adverse health effects of Benzyl Benzoate?	+
Why should you avoid any product that contains Butoxyethanol?	+
How does Butylphenyl methyl propionyl affect our health?	+
What are chloromethane, Dichloromethane, and Diethyl phthalate (DEP)? And how bad can these chemicals be for health?	+
Are essential oil mixtures also harmful?	+
How bad is Eugenol methyl ether (Methyl eugenol) when consumed?	+
Is Formaldehyde harmful?	+
What is MEA, DEA, TEA – ethanolamines?	+
What are the side effects of Methanol and Oxybenzone?	+
Is Propylparaben harmful if used?	+
How are Resorcinol, Styrene, and Synthetic Musks bad for consumers' health?	+

Is Titanium dioxide also hazardous?



What are the side effects of 1,4-Dioxane?



How are Ethylbenzene and Vinyl acetate harmful to health?



Which population is most likely to be affected by fragrances?



What are the regulations to avoid these fragrances?



How can I avoid harmful fragrance chemicals?



Explore other Chemicals

Phthalates (<https://www.safecosmetics.org/chemicals/phthalates/>)

Resorcinol (<https://www.safecosmetics.org/chemicals/resorcinol/>)

Titanium Dioxide (<https://www.safecosmetics.org/chemicals/titanium-dioxide/>)

Lead And Other Heavy Metals (<https://www.safecosmetics.org/chemicals/lead-and-other-heavy-metals/>)

Phenoxyethanol (<https://www.safecosmetics.org/chemicals/phenoxyethanol/>)

Ethanolamine Compounds (MEA, DEA, TEA And Others) (<https://www.safecosmetics.org/chemicals/ethanolamine-compounds/>)

[View All Chemicals of Concern > \(/chemicals/\)](#)

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