

# PERFUMES

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# WHAT IS PERFUME

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- Perfume is a mixture of fragrant essential oils or aromatic compounds, fixatives and solvents used to give the human body, animal, food objects and living
  - **Perfumes are supposed to release a continuous pleasant fragrance that will provide a long lasting**  
It has been used for centuries by mankind.

- feeling of freshness.

- Initially it was only used for religious purpose but

# HISTORY OF PERFUME

- The Egyptians were the first who used perfume for personal enjoyment, but the production of perfume was reserved for the priests and they used it in religious purpose.
- The Greek used an extraordinary amount of perfume and for each part of the body they used a different fragrance for hygiene of the body.
- The history of the Arabs is the fusion of art and science. Two talented Arabian chemists - Jābir ibn Hayyān and Al - Kindi established the perfume industry.
- The Romans used perfume as a part of luxury.

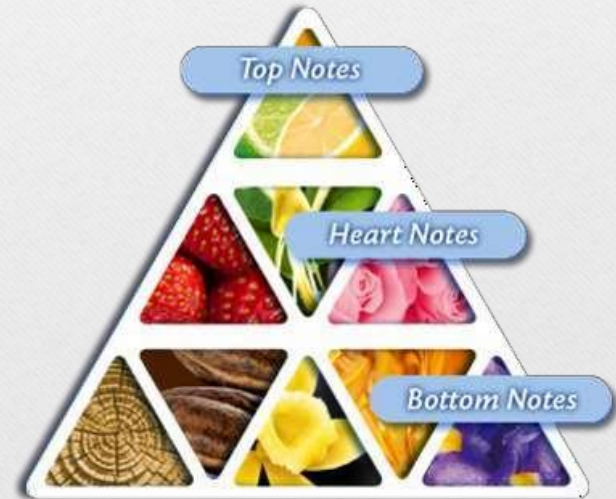
- The oldest perfumery was discovered on the island of Cyprus 4,000 years ago indicating that perfume manufacturing was on an industrial scale.
- The Hungarians introduced the first modern perfume, made of scented oils blended in an alcohol solution at the command of Queen Elizabeth of Hungary.
- France is the birthplace of modern perfumery. France provided to grow aromatic plants for perfume industry with raw materials. Even today, France remains the centre of the European perfume design and trade.
- England and Germany also contributed a lot in modernization of perfumery.

# NOTES IN PERFUME

- Perfume is described in a musical metaphor as having three sets of *notes*, making the harmonious scent *accord*.
- These notes are created carefully with knowledge of the evaporation process of the perfume.

The three notes are:

- a. Top notes
- b. Middle notes
- c. Base notes



- Each of these levels, however, has its own primary purpose.

**a) Top notes :-** They are generally the lightest of all notes and recognized immediately after application. Top notes consist of small, light molecules with high volatility that evaporate quickly.

Common fragrances of top notes include citrus (lemon, orange zest), light fruits (grape, berries), and herbs (clary sage, lavender).

**b) Middle Notes :-** The middle notes or the heart notes, makes an appearance once the top notes evaporate. The middle note compounds from "*heart*" or main body of a perfume and act to mask the often unpleasant initial impression of base notes, which become more pleasant with time.

Common fragrances of middle notes includes rose, lemon, nutmeg, jasmine etc.

## e) **Base notes:**

Base notes or bottom or dry notes appear while middle notes are fading. The base and middle notes together are the main theme of a perfume. Base notes bring depth and solidity to a perfume. Common fragrances of base notes include sandalwood, vanilla, amber and musk.



**Fig: Three notes of perfume**



# CLASSIFICATION OF PERFUMES

- Perfumes are classified into five major groups on the basis of concentration of fragrance and duration of lasting:-
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Class	% of aromatic compound	Duration (hours)
Parfume(perfume)	20-30	6-8
Eau de parfume	15-20	4-5
Eau de toilette	5-15	2-3
Eau de cologne	2-4	2
Eau fraiche	1-3	2

- Perfumes can further be classified into following classes:

*1. Bright floral:* Fragrance from one or several flowers.  
e.g. Estee lauder's *Beautiful*

*2. Green:* Fragrance from cut grass or leaf. e.g. Calvin Klein's *Eternity*

*3. Aquatic:* A clean smell reminiscent of ocean. e.g. Davidoff *Cool Water*

*4. Citrus:* Has freshening effect. e.g. Faberge *Brut*

*5. Fruity:* Aromas of fruits other than citrus. e.g. Ginestet *Botrytis*

*6. Gourmand:* Scent with edible or desert like qualities.  
e.g. Thierry Mugler's *Angel*.

# AROMATIC SOURCES

Fragrances used in perfume can be found from following sources:

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a) *Plant Source:*

Barks, flowers, blossoms, fruits, resin, roots, seeds, woods etc.

b) *Animal Source:*

Musk, civet, honeycomb etc.

c) *Synthetic Source:*

Calone, synthetic terpenes etc.

# COMPOSITION OF PERFUME

Perfumes are mainly composed of :-

1. **Essential oils** :- Derived from natural aromatic plant extracts and/or synthetic aromatic chemicals. E.g. limonene, geraniol, citral etc.
2. **Fixatives** :- Natural or synthetic substances used to reduce the evaporation rate E.g. benzyl benzoate, benzyl alcohol etc.
3. **Solvents** :- The liquid in which the perfume oil is dissolved in usually 98% ethanol and 2% water. Alcohol allows fragrance to spread along with it and does not permit microbial growth in perfume.

# MANUFACTURING PROCESS

Perfumes can be manufactured by following steps:

- I. Collection
- II. Extraction
- III. Blending
- IV. Aging

# MANUFACTURE OF PERFUME

## *I. Collection:*

Before manufacturing process begins the sources of suitable fragrances are collected in the manufacturing centre.

## *II. Extraction:*

Oils are extracted from plants and other substances by several methods like:

*a. Steam distillation:* steam is passed through plant materials held in a still, whereby the essential oil turns to gas. This gas is then passed through tubes, cooled, liquefied and collected.

*b. Solvent extraction:*

The flower parts are dissolved in benzene or petrolatum that retains the fragrance of the flower.

Alcohol is used to dissolve the fragrance and heated to obtain it after evaporation of alcohol.

*c. Enfleurage:*

Flowers are kept in glass sheet with grease that absorb the fragrance of flowers and then extracted with alcohol.

*d. Expression:*

The citrus fruits or plants are manually or mechanically pressed until all the oil is squeezed out.

### *III. Blending:*

- Once the perfume oils are collected, they are ready to be blended together according to a formula determined by a master in the field, known as a "nose."
- After the scent has been created, it is mixed with alcohol. Most perfumes are made of about 10-20% perfume oils dissolved in alcohol and traces of water.

### *IV. Aging:*

- Fine perfume is often aged for several months or even years after blending to ensure that the correct scent has been achieved.



# INGREDIENTS LISTED AS ALLERGENS IN EU REGULATIONS :-

Category	No. of individual fragrances	No. of natural extracts	Examples
Established in humans	54	28	Citral, Geraniol, Turpentine oil,
Established in animals	18	1	Isocyclocitral, Dibenzyl ether, Jasminum Sambac flower extract
Likely	26	-	Ethyl vanillin, Methyl cinnamate, Phytol
Possible	35	13	Benzyl acetate, Phenylpropanol, Illicium verum fruit oil

# INGREDIENTS CAUSING ALLERGIC REACTION

Ingredients	Use	Side effects
Sandal wood	Fragrance	Hypersensitivity
Limonene	Slightly astringent smell	Irritates the skin
Benzyl alcohol	Fixative	Skin irritant causing redness and pain
Benzyl benzoate	Fixative; sweet balsamic odor	Skin irritation like blister, itching, scaling, redness.
Acetone	Solvent	Inhalation cause dryness of mouth & throat
Ethyl acetate	Solvent	Defatting effect on skin & may cause drying & cracking

# PSYCHOLOGY OF USING PERFUME

- When we inhale the odorant molecules of a perfume, it not only creates the **sensation** of odor but also creates **emotions and experiences** associated with it. For instance, we focus on the pleasant childhood memories associated with the smell of vanilla.
- Stimulation of hippocampus causes secretion of growth hormone, sex hormone and neurotransmitters.
- Another reason behind perfume use is to increase ones attractiveness in the eyes of other people.
- We wear a perfume which best expresses our individuality, our tastes and our character.
- Perfume using may become a habit and without it a person may feel incomplete.

## THE FUTURE

Perfumes today are being made and used in different ways than in previous centuries. Perfumes are being manufactured more and more frequently with synthetic chemicals rather than natural oils. Less concentrated forms of perfume are also becoming increasingly popular. Combined, these factors decrease the cost of the scents, encouraging more widespread and frequent, often daily, use.

Like aromatherapy, more research is being conducted to synthesize human perfume—that is, the body scents we produce to attract or repel other humans. New perfumes are being created to duplicate the effect of pheromones and stimulate sexual arousal receptors in the brain.

# REFERENCES

- Butler H. , Poucher's Perfumes, Cosmetics and Soaps, by Kluwer Academic Publishers, 10<sup>th</sup> edition, Pg. no. 13-66
- Askinson G.W. , Furst I. , Perfumes and Their Preparations , 1892 ,
- Perfume allergies listed on [http://ec.europa.eu/health/scientific\\_committees/opinions\\_layman/perfume-allergies/en/index.htm#4](http://ec.europa.eu/health/scientific_committees/opinions_layman/perfume-allergies/en/index.htm#4)

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Thank  
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