

Perfume

© 2011, 2010, 2009, 2008 by David A. Katz., All rights reserved

The word *perfume* derives from the Latin "*per fumum*", meaning *through smoke*. Perfumery, or the art of making perfumes, began in ancient Mesopotamia and Egypt and was further refined by the Romans and Persians.

Knowledge of perfumery came to Europe as early as the 14th century due partially to the spread of Islam. The first modern perfume, made of scented oils blended in an alcohol solution, was made in 1370 at the command of Queen Elizabeth of Hungary and was known throughout Europe as Hungary Water. The art of perfumery prospered in Renaissance Italy, and in the 16th century, Italian refinements were taken to France by Catherine de' Medici's personal perfumer, Rene le Florentin. His laboratory was connected with her apartments by a secret passageway, so that no formulas could be stolen en route.

France quickly became the European center of perfume and cosmetic manufacture. Cultivation of flowers for their perfume essence, which had begun in the 14th century, grew into a major industry in the south of France. During the Renaissance period, perfumes were used primarily by the wealthy to mask body odors resulting from infrequent bathing. Partly due to this patronage, the western perfumery industry was created. By the 18th century, aromatic plants were being grown in the Grasse region of France to provide the growing perfume industry with raw materials. Even today, France remains the centre of the European perfume design and trade.

Essential oils for perfumes

The essential oils used in perfumes are classified according to volatility, or the rate they diffuse into the air:

- **Base notes**, are the least volatile and will last for a longer period of time. These are the aromas that will last for several hours or longer.
- **Middle notes** tend to be floral or spicy and give body to blends. These may last for 30 minutes to about an hour.
- **Top notes** are the most volatile and are first perceptible odors from a perfume. Top notes are usually of short duration lasting a few minutes to maybe 30 minutes.

Some of the oils used as base notes are frankincense, myrrh, sandalwood and vanilla.

Middle notes are clove, ylang-ylang, lavender, jasmine, rose, and geranium.

Top notes are bergamot, juniper berry, cedarwood, lavender, geranium, gardenia, cinnamon, and clove.

Perfumes are usually formulated in alcohol, however, these may be cloudy solutions. Eau de perfumes are usually formulated in oils and are normally clear and generally have an amber color due to the natural color of the oils.



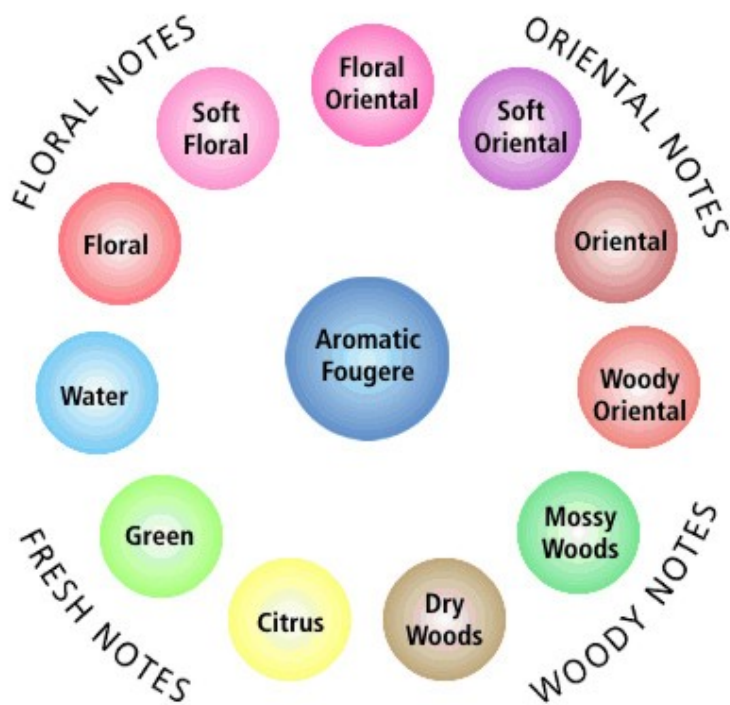
The fragrance pyramid

Perfume types reflect the concentration of aromatic compounds in a solvent, which, in fine fragrances, is typically ethanol or a mix of water and ethanol. Various sources differ considerably in the definitions of perfume types. The concentration by percent/volume of perfume oil is as follows:

- Perfume extract (Extrait): 15-40% (IFRA: typical 20%) aromatic compounds (Note: IFRA is the International Fragrance Association)
- Eau de Parfum (EdP), Parfum de Toilette (PdT): 10-20% (typical ~15%) aromatic compounds. Sometimes listed as "eau de perfume" or "millésime".
- Eau de Toilette (EdT): 5-15% (typical ~10%) aromatic compounds
- Eau de Cologne (EdC): Chypre citrus type perfumes with 3-8% (typical ~5%) aromatic compounds
- Splash and After shave: 1-3% aromatic compounds

Mixtures will need time to blend and develop. This may be several hours or a few days.

Each perfume will react differently depending on your skin chemistry and pH. When buying perfumes, try to get testers or samples so you can learn how that blend reacts to your skin and how the aromas will behave over time.



The fragrance wheel

Making Perfume

In this experiment we will make several different perfumes: floral, spicy, and woody. We will also make a simple rose-sandalwood blend.

We will make the perfumes in jojoba oil. This will produce a clear, amber colored perfume. Note: This is called **eau de perfume**.

You can also make perfumes using pure ethyl alcohol (commonly sold as Everclear), or, if not available, use 100 proof Vodka (a 50% alcohol solution in water). Do not use denatured alcohol as isopropyl alcohol, used in the denaturing process, has an odor that will affect the perfume. Note: Alcohol based perfumes may be cloudy and may separate over time.

When diluting alcohol-based perfumes, use pure distilled water.

Bottles of essential oils often have dropper-type stoppers in them. If these types of stoppers are not in the bottles, it is best to use glass droppers to measure essential oils or fragrance oils, but plastic droppers are sufficient for a one-time use. **Use a separate dropper for each oil.**

Always use one essential oil at a time. Replace the bottle cap immediately after use to prevent cross contamination of the essential oils.

Glass stirring rods are preferred.

It is best to let the perfumes stand overnight or up to 24 hours before using them. This allows the ingredients to blend and develop.

Recipes for Women

Memories, a floral-oriental blend

Add 4 mL of Jojoba oil or alcohol to a small vial.

Add the following essential oils or fragrance oils:

- 6 drops oil of bergamot
- 16 drops tuberose or rose fragrance oil
- 4 drops oil of ylang-ylang
- 6 drops gardenia fragrance oil
- 8 drops oil of sandalwood

Secrets, a spicy blend

Add 4 mL of Jojoba oil or alcohol to a small vial.

Add the following essential oils or fragrance oils:

- 4 drops allspice oil
- 2 drops oil of cinnamon
- 10 drops lavender oil
- 10 drops rose fragrance oil
- 4 drops sandalwood

Woodrose, a rose-sandalwood blend (this is a simple woody perfume)

Add 4 mL of Jojoba oil or alcohol to a small vial.

Add the following essential oils or fragrance oils:

- 10 drops of rose fragrance oil
- 5 drops oil of sandalwood

Allure, a floral, soft fragrance

Add 6 mL of Jojoba oil or alcohol to a small vial.

Add the following essential oils or fragrance oils:

- 15 drops of citrus fragrance oil
- 2 drops of rose fragrance oil
- 10 drops of jasmine fragrance oil
- 8 drops of lily of the valley fragrance oil
- 5 drops of floral bouquet fragrance oil
- 10 drops of sensual fragrance oil

Arabian Nights, an exotic perfume

Add 6 mL of Jojoba oil or alcohol to a small vial.

Add the following essential oils or fragrance oils:

- 3 drops of coriander oil
- 1 drop of Frankincense oil
- 3 drops of Juniper oil
- 4 drops of Orange oil

Enrichment, an uplifting perfume

Add 4 mL of Jojoba oil or alcohol to a small vial.

Add the following essential oils or fragrance oils:

- 2 drops of cardamom
- 2 drops of caraway
- 2 drops of frankincense
- 3 drops of rosewood.

Recipes for Men

Baywood

Add 4 mL of Jojoba oil or alcohol to a small vial.

Add the following essential oils or fragrance oils:

- 2 drops oil of clove bud
- 8 drops oil of juniper
- 6 drops bayberry fragrance oil
- 10 drops vanilla fragrance oil
- 6 drops oil of cedarwood

Fireside

Add 4 mL of Jojoba oil or alcohol to a small vial.

Add the following essential oils or fragrance oils:

- 6 drops oil of juniper
- 6 drops oil of pine
- 4 drops oil of myrrh
- 6 drops oil of cedarwood
- 8 drops oil of sandalwood
- 4 drops oil of frankincense

3. Take a small amount of the floral or the spicy perfume and put it on the back of one hand. Place a small amount of the rose-sandalwood mixture on the back of your other hand. Compare the scents of the two perfumes after 30 minutes; after one hour; after two hours. As the top notes and middle notes of the floral or spicy perfume evaporate, can you detect the base notes of the two perfumes?

References:

Aftel, Mandy, *Essence & Alchemy*, Gibbs Smith Publisher, 2001.

Booth, Nancy M., *Perfumes, Splashes & Colognes*, Storey Publishing, 1997.

Doty, Colleen K., *The Essential Oils Book*, Storey Publishing, 1996.

Wildwood, Chrissie, *Create Your Own Perfumes Using Essential Oils*, Judy Piatkus Publishers Ltd., 1994.

Appreciation to Lida Schoen and her perfume recipe in her Young Ambassadors for Chemistry (YACs) handbook.