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## Weekend Fragrance Classes By Jo™

### Phenyl Ethyl Alcohol

(3/21/2015)

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## Phenyl Ethyl Alcohol – PEA

CAS – 60-12-2

Synonyms: 2-phenylethanol

### Organoleptic – Scent Profile

Odor Type:	Floral
Odor Strength:	Medium
Odor Description @ 100%:	Floral, rose. Dried rose, rose flower water
Odor Description	Sweet, floral, fresh and bready with a rose honey nuance
Substantivity:	32 hours
GRAS Status:	Yes (food)
Soluble In:	alcohol dipropylene glycol fixed oils kerosene mineral oil, slightly propylene glycol water, 2.199e+004 mg/L @ 25 °C (est)
Insoluble In:	paraffin oil water



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Stability:

- alcoholic lotion
- antiperspirant
- bleach
- deodorant stick
- detergent
- fabric softener
- hair spray
- hard surface cleaner
- liquid detergent
- non-discoloring in most media
- shampoo
- soaps

#### PROPERTIES

Appearance: Colorless clear oily liquid

FCC (Food Chemical Codex Listed): Yes GRAS Approved

Flash Point: 216 °F.

Storage: Store in cool, dry place in tightly sealed containers, protect from heat and light

Floral Use: Apricot, Peach, Chocolate, Butter, Bread, Tea, Plum, Passion Fruit, Pear, Raspberry, Raisin, Rose, Strawberry and Tobacco flavors

Safety In Use: Recommendation for phenethyl alcohol fragrance usage levels up to: 40.0000 % in the fragrance concentrate.  
Recommendation for phenethyl alcohol flavor usage levels up to: 25.0000 ppm in the finished product.



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#### Occurrence In Nature:

aleppo pine, apple, apricot, banana, beer, caninha, carnation, cassava, champaca absolute (michelia alba dc.) @ 6.38%, champaca absolute @ 25.00%, champaca concrete @ 2.58%, champaca concrete @ 30.00%, cheese bleu cheese, eschweilera coriacea (a. p. dc.) mori flower oil brazil @ 6.80%, filbert, genet absolute @ 0.50%, geranium leaf oil india @ 0.13%, geranium petiole oil india @ 0.10%, geranium stem oil india @ 0.26%, hyacinth, jasmin, jasmin sambac absolute egypt @ 2.15%, ketaki flower oil india @ 4.50%, kewda oil @ 0.05-0.13%, kiwi fruit flowers, kogyoku apples, korean chamchwi, lecythis usitata miers. var. paraensis (ducke) r. kunth. flower oil brazil @ 40.80%, lily, michelia champaca, mushrooms, narcissus absolute @ 0.57%, neroli, neroli oil CO2 extract @ 0.64%, orange, orange juice, orange flower absolute morocco @ 0.0-2.1%, orange flower water absolute @ 0.9-3.9%, pandamus odoratissimus congo, peach, pear, petitgrain mandarin oil @ 0.03%, plum, plumeria acutifolia oil, raspberry fruit, rose absolute, rose concrete, rose distillation waters, rose oil otto bulgaria @ 0.13%, strawberry, swiss mountain cheese, tea, tea leaves, tea rose leaves, tobacco leaf oil, Japanese wine, ylang ylang

#### Occurrence and uses

Phenethyl alcohol is found in extract of rose, carnation, hyacinth, Aleppo pine, orange blossom, ylang-ylang, geranium, neroli, and champaca. It is also an autoantibiotic produced by the fungus *Candida albicans*. There has also been some undertaking of extraction of PEA from orange juice. It is therefore a common ingredient in flavors and perfumery, particularly when the odor of rose is desired.

- In addition to its heavy use in perfumery and fragrance blending Phenyl Ethyl Alcohol is also used in a wide variety of applications.
- It is used as an additive in cigarettes.
- It is of significant interest for its insecticidal agents
- It is recognized for its natural fungicidal agents conditions.



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- It is also used as a preservative in soaps due to its stability in basic conditions.
- It is of interest due to its antimicrobial properties.
- It has measurable bactericidal effects in concentrations of more than 0.5%

Many derivatives are used for pharmacological actions, PEA is a precursor in biosynthesis of phenethylcilli and is used in large amounts in manufacture of penicillin

In fragrance blends PEA is commonly used at 5, 10, and ever 20% but it can be used as high as 40% in the perfume concentrate. Both the odor strength and the substantivity numbers are of medium strength but this is a material that modifies and also adds fixation value. This is one of the most important aroma compounds in use and it is also one of the oldest aroma compounds with continuous use since the 1800's.

Stable in an alkali base and therefor an excellent candidate for soap makers wishing to impart a rose note or to soften harsh notes while maintaining a natural note in their custom blends. PEA works across the board in most any fragrance composition; floral, balsamic, Oriental, mossy, herbaceous, woody, aldehydic, and more.

A consideration for use when PEA is in formula would be the addition of musks, coumarin (Tonka bean), Guaiacwood, and sandalwood. In soap fragrance formulas the perfumer can expect a bright rose petal odor that is especially useful in rose, neroli, lilac and magnolia blends.

Interestingly PEA is found in as high as 60% concentrations as a constituent of rose absolute. However it makes up less than 1% of the constituent base of rose otto (essential oil). This loss can be attributed to the heat and dilution into the distillate water during distillation of rose otto.

For myself, PEA is a staple and it finds its way into almost all blends. Since it is a light aromatic note it can work in the background or be enhanced as the perfumer wishes. Rose of most any extraction or composition is one of the work horses of blending. When working with base notes that can be harsh or rough, such as one may find with some woods or ambers the addition of PEA to a blend will not only soften the harsh notes but also act as a bridge between base and heart notes. I will cover more of this in my perfume lessons but one of the main jobs of a fragrance is to release consistent scent for the longevity of the fragrance volatility. Finding ways to increase volatility and scent longevity is the challenge.



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The next part of this I want to present but I need to put a cautionary note in this lesson. The next part of this lesson has to do with PEA and its use and effectiveness in medicinal and pharmacological uses. Some of what you will read here will have to do with the antibacterial action of PEA. The links and information all come from scientific periodical and reports, the information is solid science and it is not only promising but it is actively being used today.

Now the cautions...

PEA is in no way an acceptable preservative for cosmetic formulations that require protection from gram negative, gram positive, and other nasty germs that invade cosmetic formulations. PEA is not new, it's not something that you just discovered, it has been around for a long time and it is one of the most trusted and used aroma chemicals in use today. The tests and documentation listed below is for your information only and is given with the intention of providing you with a concise and broad use application of this material. It's all good, in fact it is great, but please do not think that this will replace the preservative in your products.

Final NOTE: If you want to read more this abstracts are available for purchase at their associated links

[The selective antibacterial action of phenylethyl alcohol](#)

**Journal of Pharmaceutical Sciences -**

<http://onlinelibrary.wiley.com/doi/10.1002/jps.3030420103/abstract>

Abstract

The inhibitory action of phenylethyl alcohol on the growth of several bacteria has been determined. The results reported indicate that phenylethyl alcohol in relatively low concentrations (1:400) exerts an effective inhibitory action on Gram-negative bacteria and may thus be used for differential inhibition...

Phenylethyl alcohol (PEA) application slows fungal growth and maintains aroma in strawberry



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#### Postharvest Biology and Technology -

<http://www.sciencedirect.com/science/article/pii/S0925521407000610>

In order to investigate the effect of phenylethyl alcohol (PEA) on the extension of shelf-life and quality of strawberries, physicochemical properties and flavor changes were determined in PEA-treated strawberries (*Fragaria ananassa* cv. Maehyang). Fungal growth on the surface of PEA-treated strawberries during storage at 4 °C was significantly lower than that of the control group throughout the experimental period.... Clipped ... The results suggest that PEA can be used to prolong the postharvest life of this fruit.

Interestingly, I just purchased some Flonase nasal spray for allergies and the first use was of the scent of PEA. So I looked at the ingredient list and there it was under inactive ingredients. I'm thinking that it is in there for the antibacterial effects. Never the less it's one of the best smelling nasal sprays out there and it does work on allergies.

PEA (Phenyl Ethyl Alcohol) is a wonderful addition to any perfume or fragrance organ. It has so many uses; scent of rose, blender, fixer, and bridge. It is used just like any fragrance material, fragrance oils, essential oils, or aroma chems, as parts of a formulation.

PEA can comprise as much as 40% of your fragrance blend but is often used in lesser amounts to exalt or soften a blend. Its mild odor is deceiving as it actually has great power in formulations with wonderful fixation value.

We hope you will consider getting in on the PEA Fast Buy and that you now have a better understanding of this very useful material.