



# Organoleptic Characteristics of Flavor Materials

## Focus on naturals

Gerard Mosciano

Gerard Mosciano is joined by Judith Michalski, chief flavorist, Edlong Flavors; Carl Holmgren, consulting flavor chemist; and Douglas Young, principal flavorist, Symrise, in the organoleptic evaluations presented here.

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With the creative flavor business becoming more technically advanced, it has become a challenge to create flavors that conform to customers' varied and lofty expectations and specifications. Aside from having to create flavors that re-create the natural organoleptic profiles for everything from apple to a myriad of fanciful fruit combinations, flavorists also have to overcome all processing limitations, religious mandates and labeling requirements, and produce an acceptable flavor within narrow fiscal guidelines. Today, the trend in flavor requirements is natural or WONF (with other natural flavors). In addition to complying with a host of other legal and religious specifications, we routinely see requests for organic and allergen-free flavors. As a result, ingredient suppliers have had to consistently improve their flavor ingredients. The latest improvements in ingredient technology have led to the development and production of superior natural flavor ingredients, isolates and distillates that have enabled flavorists to create more effective flavors.

I don't believe that flavorists can wait until they receive a project before looking for possible candidate ingredients. Instead, a flavorist constantly should be screening

and evaluating the newest offerings from the ingredient suppliers in order to have a better idea of what is available, and to be able to quickly incorporate these improved ingredients into a new successful creation and submission.

The following are some of the more interesting and unique new flavor ingredients available today. This listing is only a sampling of what we have evaluated and is not intended as a static compilation of ingredients, but as a starting point for comparison for future suppliers and their ingredients.

## Evaluations

### Butter Cooked

*Source:* International Flavors & Fragrances  
Natural

*Odor:* Neat. Sweet brown, fatty, creamy, rich cooked butter and ghee, notes reminiscent of dulce de leche with rich lactonic nuances.

*Taste:* @ from 0.5-1.0 percent. Sweet, mild drawn brown butter, creamy and caramel with a rich lactonic buttery mouthfeel.

*Possible applications:* Caramel, toffee, dulce de leche, pan-release flavors, baked goods, butterscotch, ghee, butter flavors, popcorn flavors.

► **International Flavors & Fragrances;**  
*tel:* 732-329-4600; [www.iff.com](http://www.iff.com)

## Coffee Essence Concentrate CE205

Source: Sensus

Natural

**Odor:** Neat. Fresh-brewed dark-roasted coffee, roasted nut and espresso or European coffee beanlike, sulfurous furfuryl mercaptan with slight furanone and smoky nuances.

**Taste:** @ 0.20 percent. Fresh-brewed, full-bodied dark-roasted coffee with a slight powdery mocha nuance and a lingering nutty and beany astringency.

**Possible applications:** Coffee body and top notes, espresso and French roast coffee, mocha, roasted nutty nuances, cocoa, chocolate, peanut, savory nuances, roasted meaty notes and baked potato.

► **Sensus;** tel: 513-892-7100; [www.sensusflavors.com](http://www.sensusflavors.com)

## Compound 1036

Source: Cargill Flavor Systems

Natural

**Odor:** @ 1.0 percent. Green fruity with tropical nuances, cognac waxy, fusel alcoholic whiskeylike with nutty rum nuances.

**Taste:** @ 50 PPM. Cognac, fusel oil, grape skin, fruity, waxy whiskeylike with brandy nuances.

**Possible applications:** Cognac, rum, whiskey, brandy, plum, grape, prune, rum raisin, alcoholic notes for coffee flavors, wine, apple, tropical nuances, whiskey blenders and black currant.

► **Cargill Flavor Systems;** tel: 33(0)493-093-000; [www.cargillflavorsystems.com](http://www.cargillflavorsystems.com)

## Davana Oil\*

Source: Plant Lipids Ltd.

FEMA# 2359, CAS# 8016-03-3, Natural

**Odor:** @ 1.0 percent. Sweet ripe fruity, woody, ripe apple and prune with jammy and seedy notes, and other dried fruit notes of peach and apricot.

**Taste:** @ 5 PPM. Sweet ripe fruity, woody, brown raisin, apple butter, jammy and slightly tobacco with peach and apricot notes.

**Possible applications:** Dried fruit notes for apricot, peach, plum, prune, jammy strawberry, vanilla, berry enhancers, rum, cranberry, brown sugar.

► **Plant Lipids Ltd.;** tel: 91-484-2760395; [www.plantlipids.com](http://www.plantlipids.com)

\*This material also can be used in fragrance formulations.



## Attention, Perfumers

Although Gerard Mosciano's column focuses on the odor and taste characteristics of flavor materials, many of these ingredients also can be used for fragrances. If you are a perfumer, make sure to check out Mosciano's column in every issue of *P&F* magazine for unique ingredients to be used in the fragrance field! These materials will be noted with an asterisk.

## 2,5-Dimethyl-4-Hydroxy-3(2H)-Furanon-3-one (synonyms: furaneol, pineapple furanone)

Source: Natural Advantage

FEMA# 3174, CAS# 3658-77-3, Natural

**Odor:** @ 10 percent PG. Bready, sweet, cakelike, caramel, cotton candy with savory nuances.

**Taste:** @ 1.0 PPM. Sweet, bready, brown cakelike, fruity and caramel, cooked meaty nuances.

**Possible applications:** Jammy fruity nuances, caramel, bread, butterscotch, baked goods, coffee, sweetener blends, condensed milk, brown sugar, flavors for coffee, toffee, tropical fruit notes, apricot, peach, pineapple, strawberry.

► **Natural Advantage;** tel: 877-628-3528; [www.natural-advantage.net](http://www.natural-advantage.net)

## Fresh Squeezed Florida Orange FTNF

Source: Florida Worldwide Citrus

Natural

**Odor:** @ 1.0 percent.

Fresh navel orange and tangerinelike, citrus juicy body, aldehydic and slightly woody with valencene and sinensal-like depth notes.

**Taste:** @ from 10-50 PPM in 5 percent sugar and 0.1 percent CA. Fresh impacting orange juicy essence, citrus aldehydic with a slight tangerinelike nuance.

**Possible applications:** Orange juice add back, fruit punches, peach, apricot, tropical nuances such as mango and tutti-frutti impact notes.

► **Florida Worldwide Citrus;** tel: 941-746-9183; [www.floridaworldwidecitrus.com](http://www.floridaworldwidecitrus.com)





### 1-para-Hydroxyphenyl-3-Butanone (synonyms: rastone, raspberry ketone)\*

*Source:* Bell Flavors & Fragrances  
FEMA# 2588, CAS# 5471-51-2, Natural  
*Natural occurrence:* Raspberry.

*Odor:* @ 1.0 percent. Sweet fruity, woody raspberry with ripe, slightly jammy floral iononelike notes.

*Taste:* @ 20 PPM. Fruity, red berry, woody with a ripe berry, raspberry and strawberry preserve nuance.

*Possible applications:* Raspberry, strawberry, grape, tutti-frutti, fruit fixative, blackberry and cherry.

► **Bell Flavors & Fragrances;**  
*tel:* 847-291-8300; *www.bellff.com*

### Lemon Volatile Fraction Natural

*Source:* Treatt USA  
*Odor:* @ 10 percent. Sweet ethereal lemon, citrusy, impacting acetaldehyde with pulpy and juicy lemon nuances.

*Taste:* @ from 50-100 PPM in 5 percent sugar + 0.15 percent CA. Fresh, tangy and tart lemon juice, slightly fruity with clean citrus peel and lime nuances.

*Possible applications:* Lemon juice beverages, citrus nuances for fresh notes in orange, citrus punches and tropical nuances for lychee.

► **Treatt USA;** *tel:* 863-688-9500;  
*www.treatt.com*

### Lime Oil Fourfold Expressed

*Source:* Treatt USA  
Natural

*Odor:* Neat. Fresh, green juicy, lime, sweet citral citrus with a clean  $\alpha$ -terpineol note.

*Taste:* @ 5 percent sugar + 0.1 percent CA @ 15 PPM. Fresh, juicy, tangy, clean lingering lime, bright impact with a good body and a citral nuance.

*Possible applications:* Lemon, lime, tropical nuances, fresh notes for mint, cola flavors, oral care products, citrus punches, pound cake flavors.

► **Treatt USA;** *tel:* 863-688-9500;  
*www.treatt.com*

### Malto Praline Extra

*Source:* Advanced Biotech  
Natural

*Odor:* @ 1.0 percent. Sweet, nutty, grahamlike, brown, caramel, breadlike, cooked, yeasty, maple, praline and sugarlike.

*Taste:* @ 0.07 percent. Sweet, graham, caramellic, brown, baked breadlike, slightly roasted, pecan nutty, yeasty with cotton candy nuances.

*Possible applications:* Baked goods, ice-cream cone notes, fortune cookies, cake flavors, icings, caramel, graham, butterscotch, hazelnut and other nuts, coffee, flavors for coffee, condensed milk, malt, molasses, bread, general sweetener, brown sugar.

► **Advanced Biotech;** *tel:* 973-357-0577;  
*www.adv-bio.net*



### Mango Extract

*Source:* Polarome International  
Natural

*Odor:* Tropical sulfurous, ripe pulpy, fruity, acidic, mango, apricot, peach with a slight green tomato nuance.

*Taste:* @ 0.25 percent in 5 percent sugar + 0.1 percent CA. Ripe mango fruity, green, sulfurous, tropical pulpy, whiskey and slightly winey with nuances of apricot and peach.

*Possible applications:* Mango, apricot, peach, tropical nuances for papaya, pulpy nuances for orange and other fruits.

► **Polarome International;** *tel:* 201-333-8700;  
*www.polarome.com*

### p-Mentha-8-Thiol-3-One

*Source:* Charkit/Oxford Chemicals  
FEMA# 3177, CAS# 38462-22-5, Natural  
*Natural occurrence:* Buchu oil.

\*This material also can be used in fragrance formulations.





### **Orris Concrete 8 percent Irone\***

*Source:* Charabot

FEMA# 2829, CAS# 8002-73-1, Natural

*Odor:* @ 1.0 percent. Sweet, floral, woody, berry, raspberry, ionone seedy, creamy, slightly waxy and powdery.

*Taste:* @ 10 PPM. Woody raspberry, ionone, seedy, floral, waxy with blackberrylike notes.

*Possible applications:* Cherry, raspberry, strawberry, blackberry, floral woody nuances, blueberry, mango and cranberry, berry enhancers, peach and banana nuances.

► **Charabot**; tel: 33-493093333;  
[www.charabot.fr](http://www.charabot.fr)

*Odor:* @ 1.0 percent. Sulfurous, cooling minty, herbal, buchulike and tropical with fuzzy peach, mango and kiwi notes.

*Taste:* @ 0.5 PPM. Sulfurous, dirty minty, green, fruity, buchulike, tropical, fuzzy with a mango pulp note.

*Possible applications:* Kiwi, apricot, blueberry, mango, pineapple, peach, black currant, herbal nuances, guava, strawberry, raspberry, grapefruit and tropical nuances in general.

► **Charkit/Oxford Chemicals**; tel: 44-1429-863555;  
[www.oxfordchemicals.com](http://www.oxfordchemicals.com)

### **5-Methyl-2-Hepten-4-One 10 percent Neobee (synonym: hazelnut ketone)**

*Source:* Cargill Flavor Systems

FEMA# 3761, CAS# 81925-81-7, Natural

*Natural occurrence:* Roasted hazelnuts.

*Odor:* @ 1.0 percent. Sweet, roasted hazelnutlike, rich nutty with a roasted skin note.

*Taste:* @ 5 PPM in fondant. Delicate, nutty roasted hazelnut with macadamia and pecan nuances.

*Possible applications:* Coffee, hazelnut, pecan, macadamia and almond flavors, flavors for coffee.

► **Cargill Flavor Systems**; tel: 33(0)493-093-000;  
[www.cargillflavorsystems.com](http://www.cargillflavorsystems.com)



### **Osmanthus Absolute\***

*Source:* Payan Bertrand

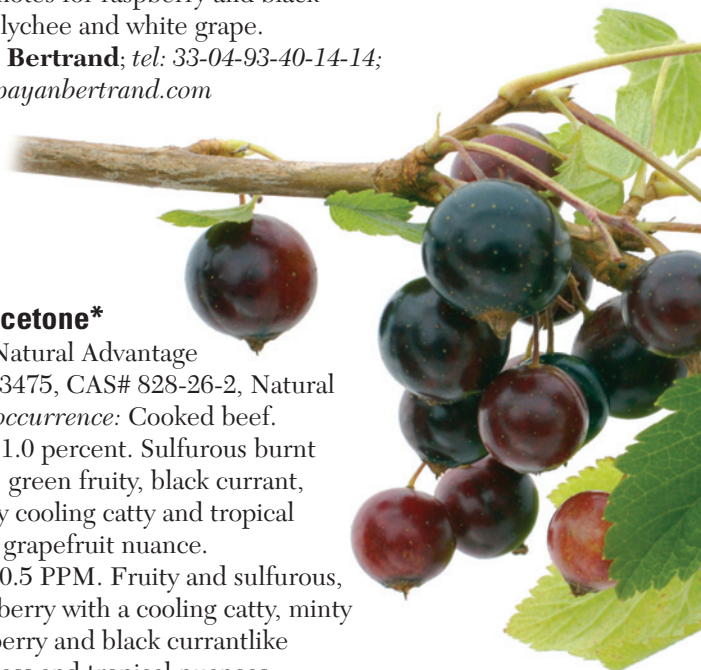
FEMA# 3750, CAS# 68917-05-5, Natural

*Odor:* @ 1.0 percent. Sweet, woody, herbal, floral, aromatic, fruity berry with juniper and ginlike nuances with citrus undertones.

*Taste:* @ 5 PPM. Ionone woody, fruity with good berry depth and slight citrus and floral nuances.

*Possible applications:* Juicy fruit enhancers, berry notes for raspberry and blackberry, lychee and white grape.

► **Payan Bertrand**; tel: 33-04-93-40-14-14;  
[www.payanbertrand.com](http://www.payanbertrand.com)



### **Trithioacetone\***

*Source:* Natural Advantage

FEMA# 3475, CAS# 828-26-2, Natural

*Natural occurrence:* Cooked beef.

*Odor:* @ 1.0 percent. Sulfurous burnt meaty, green fruity, black currant, slightly cooling catty and tropical with a grapefruit nuance.

*Taste:* @ 0.5 PPM. Fruity and sulfurous, tangy berry with a cooling catty, minty blackberry and black currantlike fruitiness and tropical nuances.

*Possible applications:* Blackberry, black currant, passion fruit, mango, mint modifiers, buchu notes, grapefruit and savory nuances.

► **Natural Advantage**; tel: 877-628-3528;  
[www.natural-advantage.net](http://www.natural-advantage.net)

\*This material also can be used in fragrance formulations.

### Valencene 80/85 percent Orange Essence Terpeneless

*Source:* Citrus & Allied Essences Ltd.  
FEMA# 3443, CAS# 4360-07-3, Natural  
*Natural occurrence:* Grapefruit, mango,  
mangosteen and orange.

*Odor:* @ 1.0 percent. Sweet, heavy  
citrus orange, slightly fatty and waxy  
with a woody citrus note and rich  
tropical depth.

*Taste:* @ 1 PPM. Fresh orange citrus with a  
juicy body and woody depth of charac-  
ter, and with a mango tropical nuance.

*Possible applications:* Orange juice, mango,  
guava, tangerine, grapefruit, mandarin  
and citrus marmalades.

► **Citrus & Allied Essences Ltd.;** *tel:*  
718-343-0030; [www.citrusandallied.com](http://www.citrusandallied.com)

### Vanilla Extract Threefold

*Source:* Edgar A. Weber & Co.  
Natural

*Odor:* Neat. Sweet, brown, creamy vanilla  
with an aromatic woody and beany  
nuance and a balsamic background.



*Taste:* @ 6 percent sugar in milk @ 0.1 percent.  
Sweet creamy, well-rounded aromatic vanilla.

*Possible applications:* General-purpose vanilla applica-  
tions but also cola, maple, baked goods, caramel,  
honey, custard flavors, raisin, malt, mango, straw-  
berry, mint modifiers, butter nuances and more.

► **Edgar A. Weber & Co.;** *tel:* 847-215-1980;  
[www.weberflavors.com](http://www.weberflavors.com)

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