

# Organoleptic Characteristics of Flavor Materials



By Gerard Mosciano

## 2-Ethyl Butyl Acetate

FEMA# 2425, CAS# 10031-87-5, Artificial, Not found in nature

*Source:* Aldrich Chemical Co.

*Odor:* @ 1.0 percent. Ethereal, sweet, fruity banana, with a musty nuance.

*Taste:* @ 10 PPM. Fruity banana, earthy, solvent-like, with nuances of peach and citrus.

*Possible Applications:* Banana, peach, apricot, mushroom and citrus.

## 2-Methoxy-4-Propyl Phenol (Dihydroeugenol)

FEMA# 3598, CAS# 2785-87-7, Artificial, Nature identical

*Source:* Aldrich Chemical Co.

*Natural Occurrence:* Fish, pork, grape brandy, mate, rum, whiskey, tea and sherry.

*Odor:* @ 1.0 percent. Sweet, spicy clove, balsamic, floral, with oily and woody nuances.

*Taste:* @ 10 PPM. Chemical, spicy clove, soapy, with peach- and apricot-like nuances.

*Possible Applications:* Smoke flavors, clove, spicy nuances for cinnamon and pepper, vanilla, and fruit nuances.

## 2-Methylbutyl Iso Valerate

FEMA# 3506, CAS# 2445-77-4, Artificial, Nature identical

*Source:* Millennium Chemical Co.

*Natural Occurrence:* Peppermint, Scotch spearmint, sherry and whiskey.

*Odor:* @ 1.0 percent. Sweet, fruity, diffusive, fatty, waxy, with a green herbal nuance.

*Taste:* @ 15 PPM. Sweet, fruity, soapy, blueberry, apple, with a green herbal background.

*Possible Applications:* Apple, blueberry, banana, pineapple, plum, pear, peppermint, cherry, tropical flavors (such as mango), grape.

## 2-Methyl-5-(Methylthio)-Furan

FEMA# 3366, CAS# 13678-59-6, Artificial, Nature identical

*Source:* Oxford Chemical Co.

*Natural Occurrence:* Coffee.

*Odor:* @ 0.1 percent. Pungent sulfurous, diffusive onion and garlic, mustard, with a peppery, metallic-green nuance.

*Taste:* @ 100 PPB-0.4 PPM. Musty, mushroom, savory meaty, onion and garlic, sour creamy and cheesy notes with pungent horseradish-like undertones.

*Possible Applications:* Coffee, wasabi horseradish, chicken, coffee, mustard, creamy dairy and cheesy nuances.

## 2,2-Thiodimethylene Difuran (Difurfuryl Sulfide)

FEMA# 3238, CAS# 1378-67-6, Artificial, Nature identical

*Source:* Oxford Chemical Co.

*Natural Occurrence:* Coffee.

*Odor:* @ 0.1 percent. Sulfurous, earthy, creamy mushroom, slightly fermented, green-onion-like, savory meaty, vegetative, with a fried-chicken nuance.

*Taste:* @ 0.1-1.0 PPM. Green vegetative, earthy mushroom, green onion, savory-brothy, with a roasted coffee nuance.

*Possible Applications:* Savory meaty notes, chicken, fat, coffee, mushroom, butter and cream nuances.

## 3-Acetyl-2,5-Dimethyl Thiophene

FEMA# 3527, CAS# 2530-10-1, Artificial, Nature identical

*Source:* R.C. Treatt

*Natural Occurrence:* Cooked beef.

*Odor:* @ 1.0 percent. Musty, moldy, vegetative, earthy, with a nutty nuance.

*Taste:* @ 2.5 PPM. Blue cheese moldy, mushroom, potato, coffee, cocoa, with a meaty nuance.

*Possible Applications:* Blue cheese, mushroom, savory meaty, beef, coffee, cocoa, nut nuances.

## 3-Heptanol

FEMA# 3547, CAS# 580-82-2, Artificial, Nature identical

*Source:* Aldrich Chemical Co.

*Natural Occurrence:* Banana, cranberry, papaya, potato, malt, peppermint, Scotch spearmint, butter, cooked beef, coffee and brandy.

*Odor:* @ 1.0 percent. Heavy whiskey notes, fruity, fermented, overripe banana, potato nuances, fatty mushroom nuances.

Gerard Mosciano is joined by Wayne Pohero, Chris Hansen; Judith Michalski, chief creative flavorist, Silesia Flavors; Carl Holmgren, chief creative flavorist, director of flavor development, Brooklyn by Perfetti Ltd.; and Douglas Young, senior creative flavorist, Dragoco, in the organoleptic evaluations presented here.

Address correspondence to Gerard Mosciano, *c/o Perfumer & Flavorist* magazine, 362 S. Schmale, Carol Stream, IL 60188.

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*Taste:* @ 2 PPM. Warm, overripe banana fruity, whiskey, with creamy nuances.

*Possible Applications:* Banana, ripe fruity esty notes for banana and whiskey.

### 3,7-Dimethyl Octanol (Dihydrocitrollol)

FEMA# 2391, CAS# 106-21-8, Artificial, Nature identical  
*Source:* Millennium Chemical Co.

*Natural Occurrence:* Lemon and thyme.

*Odor:* @ 1.0 percent. Fatty waxy, musty floral, aldehydic citrus orange peel, lemon and lime, earthy, diffusive fruity.

*Taste:* @ 2.5-10 PPM. Chemical, waxy, fatty, floral rose, citrus lemon, lime and orange, melon-like, with an earthy spicy nuance

*Possible Applications:* Floral notes, orange and bergamot, lemon and lime notes, spice nuances, melon, vegetative notes for mushroom, potato.

### 4-Methoxy-2-Methyl-2-Butanethiol

FEMA# 3785, CAS# 04087-83-9, Artificial and Nature identical

*Source:* Oxford Chemical

*Natural Occurrence:* Black currant buds and berries.

*Odor:* @ 0.1 percent. Gassy, sulfurous, catty, skunky cabbage-like roasted beef and chicken, onion, tropical fruity notes for mango, fuzzy peach and ripe blackberry on dryout.

*Taste:* @ 0.1-0.5 PPM. Sharp sulfurous, roasted onion, bloody beef and chicken, ripe catty tropical, fruity notes of peach and mango.

*Possible Applications:* Roasted and fried onion, cooked beef and chicken, savory gravy notes, tropical fruit notes for mango and passion fruit, peach and black currant, grapefruit.

### Camphene

FEMA# 2229, CAS# 79-92-5, Artificial, Nature identical  
*Source:* Millennium Specialty Chemical

*Natural Occurrence:* Carrot seed, dill, fennel, tarragon, marjoram, thyme, nutmeg, parsley and black pepper.

*Odor:* @ 1.0 percent. Woody, camphoreous, cooling minty, green eucalyptus, citrus, lime, woody pine, with tropical nuances.

*Taste:* @ 150-200 PPM. Minty, cooling, woody pine and resinous, medicinal Vicks Vapo Rub, citrus, lime and eucalyptus.

*Possible Applications:* Pine, mint nuances, oral-care products, nutmeg oil, black pepper and other spice nuances, herbal notes, citrus, lime and tropical mango nuances.

### Citral Perilla Aldehyde Natural

Natural

*Source:* Florida Treatt

*Odor:* @ 1.0 percent. Sweet, citrus lemon/lime, with a mild fatty orange aldehydic nuance.

*Taste:* @ 1.0 PPM. Strong, sweet citrus, with a mild lemon aldehydic finish.

*Possible Applications:* Citrus flavor blends for lemon, lime and orange, ginger enhancer, cola flavors.

### Fenchyl Alcohol

FEMA# 2480, CAS# 1632-73-1, Artificial, Nature identical  
*Source:* Millennium Chemical

*Natural Occurrence:* Beer, distilled lime oil, grape, grape brandy, hip oil, pine and rosemary.

*Odor:* @ 1.0 percent. Woody, camphoreous, pine, citrusy lime, with earthy and musty nuances.

*Taste:* @ 5 PPM. Bitter, musty and earthy, camphoreous, spicy black pepper, citrus lime nuances.

*Possible Applications:* Mint enhancers, citrus lemon and lime, spicy notes for black pepper, parsley and thyme, cola nuances, raspberry flavors, oral hygiene products.

### Glycyrrhizin, Monoammoniated

FEMA# 2528, CAS# 53956-04-0, Natural

*Source:* Fontarome

*Natural Occurrence:* Licorice.

*Odor:* @ 100 percent. None apparent.

*Taste:* @ 0.05 percent. Lingering sweetness, anise licorice, good mouthfeel, with a slight spice nuance.

*Possible Applications:* Chocolate flavors, baked goods, puddings, yogurt flavors, root beer and cola flavors, cereal flavors, chewing tobacco and general licorice confections.

### Methyl Furfuryl Disulfide

FEMA# 3362, CAS# 57500-00-2, Artificial, Nature identical  
*Source:* Oxford Chemical

*Natural Occurrence:* Coffee, malt, pork liver, wheat bread, asparagus, potato, roasted turkey, grilled beef, malt, cocoa, cooked rice, mushrooms, clams.

*Odor:* @ 0.1 percent. Roasted coffee, earthy, sulfurous, meaty, garlic bready, vegetative, toasted onion, liver nuances, tuna-fishy.

*Taste:* @ 0.2-1.0 PPM. Roasted beef, burnt coffee, caramellic-toasted onion, with a sulfurous horseradish and vegetative nuance.

*Possible Applications:* Vegetative notes, onion, roasted beef, chicken and coffee, cocoa, caramel, potato, bread, tuna fish and nut flavors.

### Methyl Furfuryl Disulfide Natural

FEMA# 3362, CAS# 57500-00-2, Natural, Nature identical  
*Source:* Natural Advantage

*Natural Occurrence:* Coffee, malt, pork liver, wheat bread, asparagus, potato, roasted turkey, grilled beef, malt, cocoa, cooked rice, mushrooms, clams.

*Odor:* @ 0.1 percent. Earthy, pungent, sulfurous, bready, shitake mushroom, musty, with roast coffee.

*Possible Applications:* Coffee, savory nuances for beef, shitake mushroom, nut, chicken and pork.

### Micron

FEMA# 2762, CAS # 123-35-3, Artificial, Nature identical  
*Source:* Millenium Chemical Co.

*Natural Occurrence:* Anise seed, basil, beer, black currant, gin, laurel, rosemary, thyme.

*Odor:* @ 1 percent. Fresh green, sweet carrot, herbaceous, woody tropical, peach, with bergamot like nuances.

*Taste:* @ 30 PPM. Fresh pine, woody, spicy, citrus, tropical, green nuances of peach and kiwi.

*Possible Applications:* Tropical mango and guava, carrot, bergamot.

### **Octahydrocoumarin (Cyclohexyl Lactone)**

FEMA# 3791, CAS# 4430-31-3, Artificial, Not found in nature

*Source:* Aldrich Chemical Co.

*Odor:* @ 1.0 percent. Sweet, coconut, creamy, vanilla, with floral and tropical peachy nuances.

*Taste:* @ 100 PPM. Sweet, milky coconut, vanillin, with fruity maltol nuances; good mouthfeel.

*Possible Applications:* Vanilla, coconut macaroon, milky dairy notes, caramel, nut, fruity peach nuances; tallow modifiers.

### **Phenyl Acetic Acid Natural**

FEMA# 2878, CAS# 103-82-2, Natural, Nature identical

*Source:* Robertet

*Natural Occurrence:* Guava, wines, papaya, raspberry, strawberry, potato, tomato, gruyere, Swiss and cheddar cheeses, mango, passion fruit, honey and tea.

*Odor:* @ 1.0 percent. Sweet honey floral, musty, powdery cocoa, with an animal balsamic nuance.

*Taste:* @ 50 PPM. Green floral honey, cocoa powdery, spicy cuminic-like, with rosy nuances.

*Possible Applications:* Cocoa, vanilla, floral nuances, molasses, muscat grape, honey, tobacco and tea flavors.

### **$\alpha$ -Terpinene**

FEMA# 3558, CAS# 99-86-5, Artificial, Nature identical

*Source:* Millennium Chemical

*Natural Occurrence:* Celery, coriander, fennel, grapefruit, lemon, lime, orange and mandarin oils, nutmeg, oregano, black pepper, Scotch spearmint.

*Odor:* @ 10 percent. Sweet, woody, camphoreous, citrus terpy, woody pine, turpentine, cooking nuance, dill, lime, with a thymol nuance.

*Taste:* @ 10 PPM. General citrus notes, woody, medicinal and camphoreous.

*Possible Applications:* Essential oil reconstitution, lime, woody nuances, berry complexes, anise.

### **Trimethyl Amine Natural**

FEMA# 3241, CAS# 75-50-3, Natural

*Source:* Natural Advantage

*Natural Occurrence:* Beer, caviar, cocoa, cooked pork, fish, krill, wheat bread, garlic, tomato, fatty fish, squid, scallop, crab, oysters, shrimp, cooked beef, beef fat, cocoa and mushroom.

*Odor:* @ 0.1 percent. Very fishy, shrimp/salmon, oily tuna and seafood-like.

*Taste:* @ 1.0 PPM. Amine-like, seafood, fishy and oily.

*Possible Applications:* Tuna, shrimp, salmon, lobster, scallop, oily notes for fish in general, cocoa top notes.

### **Undecanone-2 (Methyl Nonyl Ketone) Natural**

FEMA# 3093, CAS# 112-12-9, Natural

*Source:* Advanced Biotech

*Natural Occurrence:* Banana, blueberry, peach, raspberry, strawberry, onion, leek, chive, potato, clove, ginger, blue cheese, cheddar, Swiss and limburger cheeses, black currant, milk, passion fruit, filbert and peanuts.

*Odor:* @ 1.0 percent. Waxy, fruity, ketonic rue-like, green, fatty, blue cheese dairy and milky, with overripe banana and peach nuances.

*Taste:* @ 10 PPM. Musty, waxy, fruity, dairy creamy, with rue and banana nuances.

*Possible Applications:* Coconut, banana, ghee and butter, blue cheese, pineapple, mushroom and nut flavors. ■

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