The Citrus Notes of Fragrance

Glen O. Brechbill

Fragrance Books Inc.

www.perfumerbook.com

New Jersey - USA

2012
To my late much loved father Ray and beloved mother Helen Roberta without them none of this work would have been possible

II

THE CITRUS NOTES OF FRAGRANCE ©

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First Edition
What is this book about one asks? To put it as simply as possible it is about the major citrus notes that are used in the fine art of fragrance creation.

Citrus notes find their ways into a wide variety of fragrance types. In household type product category for example they can make up the majority of a single note fragrance. In fine fragrances they represent an entire family, and or a top note construction of a scent.

When I started this book I thought about adding several hundred compositions to it. This process can take several extra months of work. The compositions or formulas can be added at a latter date.

The citrus family is under pressure from the folks at (IFRA) otherwise known as the International Fragrance Regulatory Association based at the Givaudan Fragrance Corporation headquarters in Geneva, Switzerland.

As time goes by more and more pressure is being placed on the limited use of essential oils in anything other then trace amounts. Its a shame that this legislation is slowly destroying the classic fragrances and in the process ruining a fine art as we know it today.

Many clients want natural materials in their fragrance blends. Due to the ever increasing regulatory hysteria this is not happening. I think it should be up to the consumer to decide whether or not to use any given product that can be found on the www, or on the store shelves.

Keep in mind that synthetic fragrance ingredients are based on petroleum. I believe in the near future that folks will experience sooner or later problems even with these unknown synergy's or fragrance blends. Employing essential oils in fragrances help to add substance to otherwise bland formulas.

Take for example the peanut allergy problem that many individuals have to live with including my niece. I don't cook with nuts, and would never incorporate any nuts that I love into any dishes when she is visiting. I happen to love them, but eat them now and then since they are supposedly good at lowering ones cholesterol. Do we ban peanuts as a consequence?

A simple solution to the allergic problem some folk's experience with essential oils is to place a simple warning label on the product. It could appear as follows:

The fragrance, which you are purchasing, includes the following natural or essential oils. If you are allergic to any of these materials please do not purchase the product. The said ingredient has been added to the fragrance blend to add structure and beauty to the fragrance.

Instead the big five which includes the Givaudan Fragrance Corporation, Firmenich, Inc., International Flavors & Fragrances, Symrise and Takasago International created (IFRA), and are slowly in the process of destroying the art that their business was originally founded on.

Anytime an industry forgets their roots one is doom the creativity that created many of these great fra-
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Fragrance houses. Several of them even started out as an essential oil company. The International Flavors & Fragrances started from this humble beginning.

Many fok's who are both knowledgeable and fragrance illiterate falsely believe fragrances that contain close to zero natural materials are better then those that do. I personally believe the other side of the coin. Household fragrances created less then twenty years ago contained more essential oil ingredients then the ones that are created for fine fragrances today.

Personally I believe the fine fragrances of today are simpler in construction containing a lot less materials then the household formulas of years ago. Customers want cheaper and cheaper fragrances that smell like a million bucks. As most know and few realize this is impossible to achieve with a blend made up predominately of few aromatic materials. Many of the fragrances of today crash quickly, and again this is based on the synthetics.

Planet earth's petroleum reserves are a dwindling resource. At some point we will run out of easy oil in the next thirty to fifty years time. I will not be here to see it happen, but do know one day cars will not run on petroleum. I keep wondering what fragrances will be based on.

Where did I get the articles that are included on the major citrus notes one asks? The Wikipedia on line free Encyclopedia. Of course the material is incomplete. However, the word free means just that.

My next book will be on the Spices. Why do I do these books? Simply put the fragrance industry and the art has black listed me as a consequence of my self-education into this coveted profession. I did the work to become an artist. However, without apprenticing I bruised some over paid ego's who say one can not learn the art without a one on one education. Otherwise known as a mentor.

What I say to this is basically it is full of bologna. I started my short career with a small Italian owned fragrance house as a material handler and junior compounder. During my five years of employment I wore many hats and handled many jobs.

I was promoted to a junior perfumer as a ruse to gain my rough notes that went into my first book. One day I was set up and soon found myself unemployable due to age and the way my exit was arranged. No one today would hire a white male over forty for an entry-level job of any sort. I did work as a temp for seven plus years.

During the past ten years I have been involved daily in the care of aging parents. The past seven years I have been taking care of my much beloved mother who god bless is still with me. It has been hard since at present she is 95 with dementia. In order to deal with the stress of elder care and being underemployed the creative work is an outlet for dealing with the stress.

It is my hope that one day my hard work will be recognized. Everyone from the ancient pharaohs to today's billionaires want to live forever. Some make money in life, whereas others accumulate riches in terms of knowledge. I have fashioned a large database of pertinent yet fascinating information on the art of perfume.

In a way my work and web site has allowed me to get creatively even with a former employer and industry that said I wasn't good enough to become an artist. Again, each manuscript I create is also a vindication of my skills in the art of fragrance. My books will not have a thousand permutations like a single fragrance. However, in my case I have slowly created during the past seven years at least a dozen offspring from my second book.

I will continue to create this information as I can come up with new ideas and ways of shaping the information. Most perfumers will have many fragrances to his and her credit during a lifetime of work. His and her employer will own this creative work. Few books of substance are ever written simply due to the fact that there is no motiva-
tion to create one once you enter this secretive profession.

In my case I will never be recognized for a single fragrance, but a body of work no one will hopefully ever duplicate. My books on the art have been well received on the www. If folks take an issue on the way I collected this data I don't really care. All of my books are registered with the Library of Congress, and are protected by the Copyright Law.

Again, I did these books as a way to get even with a former vindictive employer who cost me a prestigious job and a career in a fascinating profession. The industry has black listed me, and my work is a way to showcase my creative talents. A single book of notes has given rise to many variations. This is perfectly true of the creative art. Any single fragrance can have many thousands of variances just by adjusting the materials and the parts per thousand of a formula.

I would like to think that both my work and web site are quality. It gives me great pleasure that not a single volume of my work has been duplicated. Perhaps on one day if I can ever figure it out my work will be available as an e-book. Until then I will have to keep my books at 1/2 view to make their use is limited beyond my site. None of my work will ever be printable.
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The Citrus Notes of Fragrance

Africa

Africa Trade

Egypt

A. Fakhry & Company

Fayyum Gharbya Aromatic

Kato Aromatic S.A.E.
Citrus is a common term and genus (Citrus) of flowering plants in the rue family, Rutaceae. Citrus is believed to have originated in the part of Southeast Asia bordered by Northeastern India, Myanmar (Burma) and the Yunnan province of China. Citrus fruit has been cultivated in an ever-widening area since ancient times; the best-known examples are the oranges, lemons, grapefruit, and limes.

The generic name originated in Latin, where it specifically referred to the plant now known as Citron (C. medica). It was derived from the ancient Greek word for cedar, ?????? (kédros). Some believe this was because Hellenistic Jews used the fruits of C. medica during Sukkot (Feast of the Tabernacles) in place of a cedar cone, while others state it was due to similarities in the smell of citrus leaves and fruit with that of cedar. Collectively, Citrus fruits and plants are also known by the Romance loanword agrumes (literally "sour fruits").

The taxonomy and systematics of the genus are complex and the precise number of natural species is unclear, as many of the named species are hybrids clonally propagated through seeds (by apomixis), and there is genetic evidence that even some wild, true-breeding species are of hybrid origin. Cultivated Citrus may be derived from as few as four ancestral species. Natural and cultivated origin hybrids include commercially important fruit such as the oranges, grapefruit, lemons, some limes, and some tangerines.

Research suggests that the closely related genus Fortunella (kumquats), and perhaps also Poncirus and the Australian Microcitrus and Eremocitrus, should be included in Citrus; most botanists now classify Microcitrus and Eremocitrus as part of the genus Citrus. Two additional genera: Triphasia and Clymenia are likewise very closely related, and bear hesperidium fruits, but are not considered part of the Citrus genus. At least one, Clymenia, will hybridize with kumquats and some limes.

Description

These plants are large shrubs or small trees, reaching 5 - 15 m tall, with spiny shoots and alternately arranged evergreen leaves with an entire margin. The flowers are solitary or in small corymbs, each flower 2 – 4 cm diameter, with five (rarely four) white petals and numerous stamens; they are often very strongly scented. The fruit is a hesperidium, a specialised berry, globose to elongated, 4 - 30 cm long and 4 - 20 cm diameter, with a leathery rind or "peel" called a pericarp. The outermost layer of the pericarp is an "exocarp" called the flavedo, commonly referred to as the zest. The middle layer of the pericarp is the mesocarp, which in citrus fruits consists of the white, spongy albedo, or "pith". The innermost layer of the pericarp is the endocarp. The segments are also called "liths", and the space inside each lith is a locule filled with juice vesicles, or "pulp". From the endocarp, string-like "hairs" extend into the locules, which provide nourishment to the fruit as it develops.
Citrus fruits are notable for their fragrance, partly due to flavonoids and limonoids (which in turn are terpenes) contained in the rind, and most are juice-laden. The juice contains a high quantity of citric acid giving them their characteristic sharp flavour. The genus is commercially important as many species are cultivated for their fruit, which is eaten fresh, pressed for juice, or preserved in marmalades and pickles.

They are also good sources of vitamin C and flavonoids. The flavonoids include various flavanones and flavones.

Cultivation

Citrus trees hybridise very readily depending on the pollen source, plants grown from a Persian Lime's seeds can produce fruit similar to grapefruit. Thus all commercial citrus cultivation uses trees produced by grafting the desired fruiting cultivars onto rootstocks selected for disease resistance and hardiness.

The colour of citrus fruits only develops in climates with a (diurnal) cool winter. In tropical regions with no winter at all, citrus fruits remain green until maturity, hence the tropical "green oranges". The Persian Lime in particular is extremely sensitive to cool conditions, thus it is not usually exposed to cool enough conditions to develop a mature colour. If they are left in a cool place over winter, the fruits will change colour to yellow. The terms "ripe" and "mature" are usually used synonymously, but they mean different things. A mature fruit is one that has completed its growth phase. Ripening is the term used to describe the changes that occur within the fruit after it is mature to the beginning of decay. These changes usually involve starches converting to sugars, a decrease in acids and a softening and change in the fruit's colour.

Citrus fruits are non-climacteric and respiration slowly declines and the production and release of ethylene is gradual. The fruits do not go through a ripening process in the sense that they become "tree ripe." Some fruits, for example cherries, physically mature and then continue to ripen on the tree. Other fruits, like pears, are picked when mature but before they ripen, then continue to ripen off the tree. Citrus fruits pass from immaturity to maturity to over-maturity while still on the tree. Once they are separated from the tree, they will not increase in sweetness or continue to ripen. The only way change may happen after being picked is that they will eventually start to decay.

With oranges, colour cannot be used as an indicator of ripeness because sometimes the rinds turn orange long before the oranges are ready to eat. Tasting them is the only way to know whether or not they are ready to eat.

Mediterranean Mandarin (Citrus × deliciosa plantation, Son Carrió (Mallorca)

Citrus trees are not generally frost hardy. Mandarin Oranges (C. reticulata) tend to be the hardiest of the common Citrus species and can withstand short periods down to as cold as - 10 °C, but realistically temperatures not falling below - 2 °C are required for successful cultivation. Tangerines, tangors and yuzu can be grown outside even in regions with more marked sub-zero degrees in winter, although this may affect fruit quality. A few hardy hybrids can withstand temperatures well below freezing, but do not produce quality fruit. Lemons can be commercially grown in cooler-summer/moderate-winter coastal Southern California, because sweetness is neither attained nor expected in retail lemon fruit. The related Trifoliate Orange (Citrus trifoliata) can survive below - 20 °C; its fruit are astringent and inedible unless cooked but a few better-tasting cultivars and hybrids have been developed (see citranges).

Leaf of Citrus Tree

The trees thrive in a consistently sunny, humid environment with fertile soil and adequate rainfall or irrigation. Abandoned trees in valleys may suffer, yet survive, the dry summer of Central California's Inner Coast Ranges. At any age citrus grows well enough with infre-
quent irrigation in partial shade, but the fruit crop is smaller. Though broadleaved, they are evergreen and do not drop leaves except when stressed. The stems of many varieties have large sharp thorns. The trees flower in the spring, and fruit is set shortly afterward. Fruit begins to ripen in fall or early winter months, depending on cultivar, and develops increasing sweetness afterward. Some cultivars of tangerines ripen by winter. Some, such as the grapefruit, may take up to eighteen months to ripen.

Major commercial citrus growing areas include southern China, the Mediterranean Basin (including southern Spain), South Africa, Australia, the southernmost United States, Mexico and parts of South America. In the United States, Florida, California, Arizona, and Texas are major producers, while smaller plantings are present in other Sun Belt states.

Ornamental Plants

Citrus trees grown in tubs and wintered under cover were a feature of Renaissance gardens, once glass-making technology enabled sufficient expanses of clear glass to be produced. An orangery was a feature of royal and aristocratic residences through the 17th and 18th centuries. The Orangerie at the Palace of the Louvre, 1617, inspired imitations that were not eclipsed until the development of the modern greenhouse in the 1840s. In the United States the earliest surviving orangery is at the Tayloe House, Mount Airy, Virginia. George Washington had an orangery at Mount Vernon.

Some modern hobbyists still grow dwarf citrus in containers or greenhouses in areas where it is too cold to grow it outdoors. Consistent climate, sufficient sunlight, and proper watering are crucial if the trees are to thrive and produce fruit. Compared to many of the usual "green shrubs", citrus trees better tolerate poor container care. For cooler winter areas, limes and lemons should not be grown, since they are more sensitive to winter cold than other citrus fruits. Hybrids with kumquats (× Citrofortunella) have good cold resistance.

Pests & Disease

Citrus plants are very liable to infestation by aphids, whitefly and scale insects (e.g. California red scale). Also rather important are the viral infections to which some of these ectoparasites serve as vectors such as the aphid-transmitted Citrus tristeza virus which when unchecked by proper methods of control is devastating to citrine plantations.

European brown snails (Helix aspersa) can be a problem in California, though laying female Khaki Campbell and other Mallard-based ducks can be used for control.

The foliage is also used as a food plant by the larvae of Lepidoptera (butterfly and moth) species such as the Geometridae Common Emerald (Hemithea aestivaria) and Double-striped Pug (Gymnoscelis rufifasciata), the Arctiidae Giant Leopard Moth (Hypercompe scribonia), H. eridanus, H. icasia and H. indecisa, many species in the family Papilionidae (swallowtail butterflies), and the Black-lyre Leafroller Moth ("Cnephasia" jactatana), a tortrix moth.

Since 2000, the Citrus Leafminer (Phyllocnistis citrella) has been a pest in California, boring meandering patterns through leaves.

In eastern Australia, the Bronze-orange Bug (Musgraveia sulciventris) can be a major pest of citrus trees, particularly grapefruit. In heavy infestations it can cause flower and fruit drop and general tree stress.

Hybrids with kumquats (× Citrofortunella) have good cold resistance.

Production

According to UN 2007 data, Brazil, China, the United States, Mexico, India, Spain and Pakistan are the world's largest citrus-producing countries. Of these, Brazil, the US, and Mexico are the world's largest producers of oranges, whilst China produces most of the world's mandarins, and India is the world's largest producer of lemons and limes.
Culinary

Many citrus fruits, such as oranges, tangerines, grapefruits, and clementines, are generally eaten fresh. They are typically peeled and can be easily split into segments. Grapefruit is more commonly halved and eaten out of the skin with a spoon. There are special spoons (grapefruit spoons) with serrated tips designed for this purpose. Orange and grapefruit juices are also very popular breakfast beverages. More acidic citrus, such as lemons and limes, are generally not eaten on their own. Meyer Lemons can be eaten 'out of hand' with the fragrant skin; they are both sweet and sour. Lemonade or limeade are popular beverages prepared by diluting the juices of these fruits and adding sugar. Lemons and limes are also used as garnishes or in cooked dishes. Their juice is used as an ingredient in a variety of dishes; it can commonly be found in salad dressings and squeezed over cooked meat or vegetables. A variety of flavours can be derived from different parts and treatments of citrus fruits. The rind and oil of the fruit is generally very bitter, especially when cooked, and so is often combined with sugar. The fruit pulp can vary from sweet and tart to extremely sour. Marmalade, a condiment derived from cooked orange and lemon, can be especially bitter, but is usually sweetened to cut the bitterness and produce a jam-like result. Lemon or lime is commonly used as a garnish for water, soft drinks, or cocktails. Citrus juices, rinds, or slices are used in a variety of mixed drinks. The colourful outer skin of some citrus fruits, known as zest, is used as a flavouring in cooking; the white inner portion of the peel, the pith, is usually avoided due to its bitterness. The zest of a citrus fruit, typically lemon or an orange, can also be soaked in water in a coffee filter, and drunk.

Medical

Citrus juice also has medical uses; lemon juice is used to relieve the pain of bee stings. Oranges were historically used for their high content of vitamin C, which prevents scurvy. Scurvy is caused by vitamin C deficiency, and can be prevented by having 10 milligrams of vitamin C a day. An early sign of scurvy is fatigue. If ignored, later symptoms are bleeding and bruising easily. British sailors were given a ration of citrus fruits on long voyages to prevent the onset of scurvy, hence the British nickname of Limey.

Pectin is a structural heteropolysaccharide contained in the primary cell walls of plants. The extract of it from Citrus Fruits is used in medicine such as Tylenol for the gelling effect of it when broken down. Limes and lemons as well as oranges and grapefruits are among the highest in this level.

After consumption, the peel is sometimes used as a facial cleanser. A peel of lemons or orange is commonly used as a means to moisten medical cannabis when stored with it. Before the development of fermentation-based processes, lemons were the primary commercial source of citric acid.

Citrus fruit juices, such as orange, lime and lemon, may be useful for lowering the risk factors for specific types of kidney stones. Orange juice may help prevent calcium oxalate stone formation. Lemons have the highest concentration of citrate of any citrus fruit, and daily consumption of lemonade has been shown to decrease the rate of stone formation.

Citrus fruits have been observed to be used by Capuchin (Cebus capucinus) monkeys in Costa Rica as topical balms to protect against insects as well as an astringent and anti-fungal agent.

Lists of Citrus Fruits

The genus Citrus has been suggested to originate in Southeast Asia. Prior to human cultivation, it consisted of just a few species, namely:

Citrus Aurantifolia - Key Lime, Omani Lime, from India
Citrus Maxima - Pomelo (pummelo, shaddock), from the Malay Archipelago
Citrus medica - Citron, from India
Citrus reticulata - Mandarin orange, from China

Citrus trifoliata - Trifoliate orange, from Korea and adjacent China (often separated as Poncirus)

Australian limes

Citrus Australasica - Finger lime (sometimes separated in Microcitrus)

Citrus Australis - Australian round lime (sometimes separated in Microcitrus)

Citrus glauca - Desert Lime (sometimes separated in Eremocitrus) and 3 other Microcitrus

Kumquats, 4 - 5 species from East Asia ranging into Southeast Asia (often separated as Fortunella)

Papedas, including

Citrus Halimii - limau kadangsa, limau kedut kera, from Thailand and Malaya

Citrus Indica - Indian wild orange, from the Indian subcontinent

Citrus Macroptera from Indochina and Melanesia

"Khasi Papeda" - Citrus latipes from Assam, Meghalaya, Burma

Hybrids & Cultivars

Sorted by parentage. As each is the product of (at least) two parent species, they are listed multiple times.

Tangor - Citrus × nobilis (C. reticulata × C. × sinensis)

Ugli (C. reticulata × C. maxima or C. × paradisi)

Citrus maxima based

Citron varieties with sour pulp: Diamante citron, Florentine citron, Greek citron and Balady citron

Citron varieties with sweet pulp: Corsican citron and Moroccan citron.

Imperial Lemon - C. × limon × C. × paradisi

Etrog, a group of citron cultivars (the term originally just means "citrus fruit")

Kiyomi (C. sinensis × C. × unshiu)

Kiyomu (Citrus × sinensis × C. × unshiu)

Fernandina - Citrus × limonimedica (probably C. medica × C. maxima × C. medica)

Ponderosa lemon (probably C. medica × C. maxima × C. medica)

Lemon (probably C. medica × C. maxima)

Yemenite citron - a pulpless citron.

Oroblanco, Sweetie (C. maxima × C. × sinensis)

Yemenite orange (probably C. maxima × C. × sinensis)

Sweet orange - Citrus × sinensis (probably C. maxima × C. × reticulata)

Bergamot Orange - Citrus × aurantium ssp. bergamia or Citrus × bergamia

Minneola tangelo (C. reticulata × C. × paradisi)

Lemon (probably C. medica × C. maxima)

Minneola tangelo (C. reticulata × C. × paradisi)

Lemon (probably C. medica × C. maxima)

Bitter Orange, Seville Orange - Citrus × aurantium

Glen O. Brechbill
The Citrus Notes of Fragrance

| Blood Orange - Citrus × sinensis cultivars | Mediterraneo Mandarin, Willow Leaf - Citrus × deliciosa | Ugli (Citrus reticulata × C. maxima or C. × paradisi) |
| Calamondin, Calamansi - Citrus reticulata × Citrus japonica | Meyer Lemon, Valley Lemon - Citrus × meyeri (C. maxima × C. medica × C. × paradisi or C. × sinensis) | Yuzu - Citrus × junos (Citrus reticulata × C. ichangensis) |
| Cam Sành (Citrus reticulata × C. × sinensis) | Michal Mandarin - Citrus reticulata cv. 'Michal' | Alemow, Colo - Citrus × macrophylla |
| Chinotto - Citrus × aurantium var. myrtifolia or Citrus × myrtifolia | Mikan, Satsuma - Citrus × unshiu | Djeruk Limau - Citrus × amblycarpa |
| ChungGyun - Citrus reticulata cultivar | Naartjie (Citrus reticulata C. × nobilis) | Gajanimma, Carabao Lime - Citrus × pennivesiculata |
| Clementine - Citrus × clementina | Nova Mandarin, Clemenvilla | Hyuganatsu (Hyuganatsu pumelo) - Citrus tamurana |
| Cleopatra Mandarin - Citrus × reshni | Orangelo, Chironja (C. × paradisi × C. × sinensis) | Ichang Lemon, Ichang Papeda - Citrus × ichangensis |
| Dekopon - Citrus reticulata cv. 'Siranui' (ChungGyun × Ponkan) | Oroblanco, Sweetie (C. maxima × C. × paradisi) | Imperial Lemon - C. × limon × C. × paradisi |
| Daidai - Citrus × aurantium var. daidai or Citrus × daidai | Ponkan - Citrus reticulata cv. 'Ponkan' | Iyokan, Anadomikan - Citrus × iyo |
| Hermandina - Citrus reticulata cv. 'Hermandina' | Sweet Orange - Citrus × sinensis (probably C. maxima × C. × reticulata) | Kaffir Lime, makrut - Citrus × hystrix |
| Imperial Lemon (C. maxima × C. medica × C. × paradisi) | Tangelo - Citrus × tangelo (Citrus reticulata × C. maxima or C. × paradisi) | Limetta, Sweet Lemon, Sweet Lime, mosambi - Citrus × limetta |
| Kinnnow, Wilking (C. × nobilis × C. × deliciosa) | Tangor - Citrus × nobilis (Citrus reticulata × C. × sinensis) | Palestine Sweet Lime - Citrus × limettioides Tanaka |
| Kiyomi (C. sinensis × C. × unshiu) | Tangerine - Citrus × tangerina | Persian Lime, Tahiti Lime - Citrus × latifolia |
| Laraha - "C. × aurantium ssp. currassuvicinens" | | Rompia ("Citrus mostruosa", a |
Rough Lemon - Citrus × jambhiri
Lush.

Sakurajima Komikan Orange

Shekwasha, Hirami Lemon, Taiwan
Tangerine - Citrus × depressa

Sudachi - Citrus × sudachi

Sunki, Suenkat - Citrus × sunki

Tachibana Orange - Citrus × tachibana (Mak.) Tanaka

Volkamer Lemon - Citrus × volkameriana

For hybrids with kumquats, see × Citrofortunella.

For hybrids with the Trifoliate Orange, see citrange.
Citrus bergamia, the Bergamot orange, is a fragrant fruit the size of an orange, with a yellow colour similar to a lemon. Genetic research into the ancestral origins of extant citrus cultivars matched the bergamot as a likely hybrid of Citrus limetta and Citrus aurantium. Citrus bergamot is a native hybrid of and commercially grown in Calabria, southern Italy, where more than 80% are found. It is also grown in southern France and in Côte d'Ivoire for the essential oil. The fruit is not grown for juice consumption.

Citrus bergamia is a small tree which blossoms during the winter. The juice tastes less sour than lemon, but more bitter than grapefruit. The distinctive aroma of the bergamot is most commonly known for its use in Earl Grey tea. The juice of the fruit has also been used in Calabrian indigenous medicine to treat malaria, and its essential oil is popular in aromatherapy applications.

The bergamot orange is unrelated to the herbs of the same name, Monarda didyma and Monarda fistulosa, which are in the mint family. The active ingredients in bergamot juice are neoeriocitrin, naringin, neohesperidin, poncirin, melitidin, and brutieridin. Melitidin and brutieridin, only recently discovered, exist only in citrus bergamot, and exhibit statin-like properties. Synephrine is not present in citrus bergamot.

Citrus bergamia has also been classified as Citrus aurantium subsp. bergamia (i.e. a subspecies of bitter orange).

Citrus bergamia is sometimes confused with (but is not the same as) Citrus medica (citron, the yellow fruit of which is also known as etrog).

Production

A bergamot orange from Calabria, Italy

Production mostly is limited to the Ionian Sea coastal areas of the province of Reggio di Calabria in Italy, to such an extent that it is a symbol of the entire city. Most of the bergamot comes from a short stretch of land there where the temperature is favourable. It is also cultivated in Ivory Coast, but the quality of the obtained essence is not comparable with the essence produced from the bergamots of Reggio due to the argillite, limestone and alluvial deposits found there.

Adulteration with cheaper products such as oil of rosewood has been a problem for consumers. To protect the reputation of their produce, the Italian government introduced tight controls, including testing and certificates of purity. During World War II, Italy was unable to export to countries such as the Allied powers. Rival products from Brazil and Mexico came on to the market as a substitute, but these were produced from other citrus fruits such as sweet lime.

Bergamot essential oil

An essence extracted from the aromatic skin of this sour fruit is used to flavour Earl Grey and Lady Grey teas, and confectionery. An Italian food manufacturer, Caffé Sicilia in Noto, Syracuse, Sicily, produces a...
commercial marmalade using the fruit as its principal ingredient. It is also popular in Turkey, Greece and Cyprus as a preserve, made with bergamot peel boiled in sugar syrup. In Sweden and Norway, bergamot is a very common flavorant in snus, a smokeless tobacco product. Likewise in dry nasal snuff it is also a common aroma in traditional blends.

The actual fruit of the bergamot orange itself is not known to be edible.

As a fragrance

Bergamot peel is used in perfumery for its ability to combine with an array of scents to form a bouquet of aromas which complement each other. Approximately one third of all men’s and about half of women’s perfumes contain bergamot essential oil. Bergamot is a major component of the original Eau de Cologne composed by Farina at the beginning of 18th century Germany. The first record of bergamot oil as fragrance ingredient is 1714, to be found in the Farina Archive in Cologne. One hundred bergamot oranges will yield about three ounces of bergamot oil.

Bergamot peel is also used in aromatherapy to treat depression and as a digestive aid.

Companion plant

Citrus bergamia has aromatic roots that are thought to mask other nearby plants from pests that attack their roots, and so are sometimes grown as a companion in vegetable gardens.

Toxicology

In several studies, application of some sources of bergamot oil directly to the skin was shown to have a concentration-dependent phototoxic effect of increasing redness after exposure to ultraviolet light (due to the chemical bergapten, and possibly also citropten, bergamottin, geranial, and neral). This is a property shared by many other citrus fruits. Bergapten has also been implicated as a potassium channel blocker; in one case study, a patient who consumed four liters of Earl Grey tea per day suffered muscle cramps.

Bergamot is also a source of bergamottin which, along with the chemically related compound 6,7-dihydroxybergamottin, is believed to be responsible for the grapefruit juice effect in which the consumption of the juice affects the metabolism of a variety of pharmaceutical drugs.

Skin care

Bergamot is used in many skin care creams and lotions which harness its cooling, refreshing nature. Bergamot is ideally suited to help calm inflamed skin, and as such is contained in some creams for skin conditions such as psoriasis. It also has antiseptic properties which help ward off infection and aid recovery.

In the past, psoralen extracted from bergamot oil has been used in tanning accelerators and sunscreens. Psoralens penetrate the skin, where they increase the amount of direct DNA damage. This damage is responsible for sunburn and for an increased melanin production. It can also lead to phytophotodermatitis, a darkening of the skin as a result of a chemical reaction that makes the skin extra sensitive to ultraviolet light.

These substances were known to be photocarcinogenic since 1959, but they were only banned from sunscreens in 1995. These photocarcinogenic substances were banned years after they had caused many cases of malignant melanoma and deaths. Psoralen is now used only in the treatment of certain skin disorders, as part of PUVA therapy.

Potential medicinal properties

Bergamot essential oil has been found to reduce excitotoxic damage to cultured human neuronal cells in vitro, and may therefore have neuroprotective properties.

Bergapten and citropten are strong inhibitors of IL-8 expression and may have potential to reduce lung inflammation in people with Cystic fibrosis.
Citropten and bergapten are powerful inducers of differentiation and ?-globin gene expression in human erythroid cells, a potential therapeutic approach in hematological disorders, including thalassemia and sickle cell anemia.

Peel waste from oil extraction contains pectins and flavonoids a potential source of natural antioxidant/anti-inflammatory phytochemicals.

Hypolipidemic effects

Bergamot juice seems to have hypolipidemic activity.
Clementine

A clementine is a variety of mandarin orange (Citrus reticulata), so named in 1902. The exterior is a deep orange colour with a smooth, glossy appearance. Clementines can be separated into seven to fourteen segments. They tend to be very easy to peel, like a tangerine, but are almost always seedless. For this reason they are sometimes known as seedless tangerines; the clementine is also occasionally referred to as the Algerian tangerine. The traditional story of its origin is that it was "originally an accidental hybrid said to have been discovered by Father Clément Rodier in the garden of his orphanage in Misserghin, Algeria." However, there are claims it originated in China much earlier. James Saunt has commented that "Some authorities believe it is virtually identical to the variety known as the Canton mandarin widely grown in Guangxi and Guangdong Provinces in China."

The clementine is not always easy to distinguish from other varieties of mandarin oranges. However, it should not be confused with similar fruit such as the satsuma or honey sweet orange, or other popular varieties.

This variety was introduced into California commercial agriculture in 1914, though it was grown at the Citrus Research Center at the University of California, Riverside as early as 1909.

Clementines, usually grown in Algeria, Spain, Morocco, Italy, Israel, Lebanon, and Turkey have been available in Europe for many years. A market for them in the United States was created recently, when the harsh 1997 winter in Florida devastated domestic orange production, increasing prices and decreasing availability. California clementines are available from mid-November through January; this availability has them referred to in some areas as "Christmas Oranges". Clementines are typically shipped in small wooden or cardboard boxes with a move in recent years to net bags. Clementines lose their desirable seedless characteristic when they are cross-pollinated with other fruit. To prevent this, in 2006 growers such as Paramount Citrus in California threatened to sue local beekeepers to keep bees away from their crops.
The grapefruit (Citrus × paradisi) is a subtropical citrus tree known for its sour fruit, an 18th-century hybrid first bred in Barbados. When found, it was named the "forbidden fruit"; and it has also been misidentified with the pomelo or shaddock (C. maxima), one of the parents of this hybrid, the other being sweet orange (C. × sinensis).

These evergreen trees usually grow to around 5–6 meters (16–20 ft) tall, although they can reach 13–15 meters (43–49 ft). The leaves are dark green, long (up to 150 mm, 6 inches) and thin. It produces 5 cm (2 in) white four-petaled flowers. The fruit is yellow-orange skinned and largely an oblate spheroid; it ranges in diameter from 10–15 cm. The flesh is segmented and acidic, varying in color depending on the cultivars, which include white, pink and red pulps of varying sweetness. The 1929 US Ruby Red (of the Redblush variety) has the first grapefruit patent.

The fruit has become popular since the late 19th century; before that it was only grown as an ornamental plant. The United States quickly became a major producer of the fruit, with groves in Florida, Texas, Arizona, and California. In Spanish, the fruit is known as toronja or pomelo.

History

One ancestor of the grapefruit was the Jamaican sweet orange (Citrus sinensis), itself an ancient hybrid of Asian origin; the other was the Indonesian pomelo (C. maxima). One story of the fruit's origins is that a certain "Captain Shaddock" brought pomelo seeds to Jamaica and bred the first fruit. However, it probably originated as a naturally-occurring hybrid.

The hybrid fruit was documented in 1750 by a Welshman, Rev. Griffith Hughes, who described specimens from Barbados. Currently, the grapefruit is said to be one of the "Seven Wonders of Barbados."[10] It was brought to Florida by Count Odette Philippe in 1823 in what is now known as Safety Harbor. Further crosses have produced the tangelo (1905), the Minneola tangelo (1931), and the oroblanco (1984).

The grapefruit was known as the shaddock or shattuck until the 19th century. Its current name alludes to clusters of the fruit on the tree, which often appear similar to grapes. Botanically, it was not distinguished from the pomelo until the 1830s, when it was given the name Citrus paradisi. Its true origins were not determined until the 1940s. This led to the official name being altered to Citrus × paradisi, the "x" identifying its hybrid origin.

An early pioneer in the American citrus industry was Kimball Chase Atwood, a wealthy entrepreneur who founded the Atwood Grapefruit Co. in the late 19th century. The Atwood Grove became the largest grapefruit grove in the world, with an annual production of 80,000 boxes of fruit. It was there that pink grapefruit was first discovered in 1906.

The 1929 Ruby Red patent was associated with real commercial success, which came after the discovery of a red grapefruit growing on a pink variety. Only with the introduction of the Ruby Red did
the grapefruit transform into a real agricultural success. The Red grapefruit, starting with the Ruby Red, has even become a symbolic fruit of Texas, where white "inferior" grapefruit were eliminated and only red grapefruit were grown for decades. Using radiation to trigger mutations, new varieties were developed to retain the red tones which typically faded to pink, the Rio Red variety is the current (2007) Texas grapefruit with registered trademarks Rio Star and Ruby-Sweet, also sometimes promoted as "Reddest" and "Texas Choice".

The Florida Department of Citrus states "the primary varieties of Florida grapefruit are Ruby Red, Pink, Thompson, Marsh and Duncan. The fresh grapefruit season typically runs from October through June."

Production - 2007

The United States is the top producer of grapefruit and pomelo followed by China and South Africa.

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Colors & Flavors

Grapefruit comes in many varieties, determinable by color, which is caused by the pigmentation of the fruit in respect of both its state of ripeness. The most popular varieties cultivated today are red, white, and pink hues, referring to the internal pulp color of the fruit. The family of flavors range from highly acidic and somewhat bitter to sweet and tart. Grapefruit mercaptan, a sulfur-containing terpene, is one of the substances which has a strong influence on the taste and odor of grapefruit, compared with other citrus fruits.

Drug Interactions

Grapefruit comes in many varieties, determinable by color, which is caused by the pigmentation of the fruit in respect of both its state of ripeness. The most popular varieties cultivated today are red, white, and pink hues, referring to the internal pulp color of the fruit. The family of flavors range from highly acidic and somewhat bitter to sweet and tart. Grapefruit mercaptan, a sulfur-containing terpene, is one of the substances which has a strong influence on the taste and odor of grapefruit, compared with other citrus fruits.

Nutritional Properties

Grapefruit is an excellent source of many nutrients and phytochemicals that contribute to a healthy diet. Grapefruit is a good source of vitamin C, contains the fiber pectin, and the pink and red hues contain the beneficial antioxidant lycopene. Studies have shown grapefruit helps lower cholesterol, and there is evidence that the seeds have antioxidant properties. Grapefruit forms a core part of the "grapefruit diet", the theory being that the fruit's low glycemic index is able to help the body's metabolism burn fat.

Grapefruit seed extract (GSE) has been claimed to have strong antimicrobial properties against bacteria and fungi. However, no studies have demonstrated any efficacy by GSE as an antimicrobial for either bacteria or fungi. Additionally, although GSE is promoted as a highly effective plant-based preservative by some natural personal care manufacturers, studies have shown that the apparent antimicrobial activity associated with GSE preparations is merely due to contamination with synthetic preservatives.

Since grapefruit juice is known to inhibit enzymes necessary for the clearance of some drugs and hormones, some have hypothesized that grapefruit juice may play an indirect role in the development of hormone-dependent cancers. A 2007 study found a correlation between eating a quarter of grapefruit daily and a 30% increase in risk for breast cancer in postmenopausal women. The study points to the inhibition of CYP3A4
enzyme by grapefruit, which metabolizes estrogen. However, a 2008 study has shown that grapefruit consumption does not increase breast cancer risk and found a significant decrease in breast cancer risk with greater intake of grapefruit in women who never used hormone therapy.

Grapefruit contains large quantities of a simple polyamine called spermidine, which may be related to aging. It is known to be necessary for cell growth and maturation, and as cells age their level of spermidine is known to fall. Scientists have shown that feeding spermidine to worms, fruit flies and yeast significantly prolongs their lifespan. In addition, adding spermidine to the diet of mice decreased molecular markers of aging, and when human immune cells were cultured in a medium containing spermidine, they also lived longer.

Grapefruit Sweets

In Costa Rica, especially in Atenas, grapefruit are often cooked to remove their sourness, rendering them as sweets; they are also stuffed with dulce de leche, resulting in a dessert called toronja relleña (stuffed grapefruit).

Other UsesGrapefruit has also been investigated in cancer medicine pharmacodynamics. Its inhibiting effect on the metabolism of some drugs may allow smaller doses to be used, which can help to reduce costs.
The lemon is both a small evergreen tree (Citrus × limon, often given as C. limon) native to Asia, and the tree's ellipsoidal yellow fruit. The fruit is used for culinary and non-culinary purposes throughout the world - primarily for its juice, though the pulp and rind (zest) are also used, mainly in cooking and baking. Lemon juice is about 5% to 6% (approximately 0.3 M) citric acid, which gives lemons a sour taste, and a pH of 2–3. Many lemon flavored drinks and foods are available, including lemonade and sherbet lemons, as well as lemon and seasoning salt as a snack. The distinctive sour taste of lemon juice makes it a key ingredient in many dishes across the world.

History

The exact origin of the lemon has remained a mystery, though it is widely presumed that lemons first grew in Southern India, northern Burma, and China. In South and South East Asia, it was known for its antiseptic properties and it was used as an antidote for various poisons. Lemons entered Europe (near southern Italy) no later than the 1st century CE, during the time of Ancient Rome. However, they were not widely cultivated. It was later introduced to Persia and then to Iraq and Egypt around CE 700. The lemon was first recorded in literature in a 10th century Arabic treatise on farming, and was also used as an ornamental plant in early Islamic gardens. It was distributed widely throughout the Arab world and the Mediterranean region between 1000 and 1150.

In India, Lemon is used in day to day life for various purposes. It is used in all Indian traditional medicines mainly in Siddha Medicine and Ayurveda. It is one of the main ingredients in many of the Indian cuisines. Either lemon pickle or mango pickle is part of everyday lunch meal in Southern India. In Hindu Pooja, lemon takes a very important place.

The first substantial cultivation of lemons in Europe began in Genoa in the middle of the 15th century. It was later introduced to the Americas in 1493 when Christopher Columbus brought lemon seeds to Hispaniola along his voyages. Spanish conquest throughout the New World helped spread lemon seeds. It was mainly used as ornament and medicine. In the 18th and 19th centuries, when lemons were first used widely in cooking and flavoring, they were increasingly planted in Florida and California.

In 1747, James Lind's experiments on seamen suffering from scurvy involved adding vitamin C to their diets with lemon juice.

The etymological path of the word lemon suggests a Middle Eastern origin. One of the earliest occurrences of "lemon" appears in a Middle English customs document of 1420–1421, which draws from the Old French limon, thence the Italian limone, from the Arabic laymu-n or li-mu-n, and from the Persian li-mu-n (a generic term for the fruit of this kind) which is cognate with Sanskrit (nimbu-，“lime”).

It has been suggested that lemons, limes and sour orange are mutations of the citron.[citation needed]
A recent study of the genetic origin of the lemon, however, reports that it is a hybrid between sour orange and citron.

**Growing Lemons**

Lemons, in common with other sweeter, slow growing varieties of citrus, often benefit from being grafted to more vigorous rootstocks.

**Differences between orange and lemon**

Various citruses do not fit the popular or botanical definition of oranges or lemons. For instance the kratta citrus of India has an orange leaf, an orange exterior, an orange pulp, yet its fruit is prominently mammillate (covered with rounded protuberances), and its flower is tinged purple. The acidless citrus, the mitha-nimboo, has a lemon-yellow exterior, a white pulp, and it is mammillate. Its leaves are like a lemon's, but its flowers are pure white. The jhambiri proper has orange-like leaves, the flowers are slightly tinged with purple, the pulp, varies from white to pale yellow, or orange, and the fruit is mammillate, and of two kinds externally, either of an orange colour, or of a lemon-yellow, and possibly also of a fawn colour.

**Varieties**

**Bonnie Brae**

Oblong, smooth, thin skinned and seedless; mostly grown in San Diego County.

**Bush Lemon Tree**

This naturalised lemon grows wild in subtropical Australia. It is very hardy, and has a thick skin with a true lemon flavor; the zest is good for cooking. It grows to about 4m in a sunny position.

**Eureka**

Because it grows year-round and abundantly, this is the common supermarket lemon.

**Femminello St. Teresa, or Sorrento:**

Native to Italy, this fruit's zest is high in lemon oils. It is the variety traditionally used in the making of limoncello.

**Jhambiri C. jambiri (Tan)**

The Rough lemon has a lemon yellow exterior and a very sour pulp. It is widely used as a rootstock in S. Asia

**Lisbon**

A good quality bitter lemon with high juice and acid levels, the fruits of Lisbon are very similar to Eureka. The vigorous and productive trees are very thorny, particularly when young.

**Meyer**

This is a cross between a lemon and possibly an orange or a mandarin, and was named for Frank N. Meyer, who first discovered it in 1908. Thin-skinned and slightly less acidic than the Lisbon and Eureka lemons, Meyer lemons require more care when shipping and are not widely grown on a commercial basis. Meyer lemons have a much thinner rind, and often mature to a yellow-orange color. Meyer lemons are slightly more frost-tolerant than other lemons.

**Ponderosa**

The tree is more cold-sensitive than true lemons; the fruit are thick-skinned and very large. Likely a citron-lemon hybrid.

**Variegated Pink**

A varietal of the eureka or lisbon cultivars with variegated patterns in the foliage and the rinds of immature green fruit. Upon maturing to yellow, the variegated pattern recedes in the fruit rind. The flesh and juice are pink or pinkish-orange instead of yellow.

**Verna**

A Spanish variety of unknown origin
Villafranca

Yen Ben

An Australasian cultivar

Yuzu

Originated in China and later introduced to Japan and Korea, yuzu have a flavor akin to a mixture of meyer lemon and white grapefruit. Yuzu is likely a wild hybrid between an ichang papeda and a sour mandarin, and is a close relative of sudachi and kaffir limes. Yuzu rival citranges and kumquats as the most cold-tolerant citrus.

Culinary Uses

Lemon juice, rind, and zest are used in a wide variety of culinary applications:

Lemon juice is used to make lemonade, soft drinks, cocktails, and marinades for both fish, where its acid neutralizes amines in fish by converting them into non-volatile ammonium salts, and meat, where the acid partially hydrolyzes tough collagen fibers, tenderizing the meat, but the low pH denatures the proteins, causing them to dry out when cooked. Lemon juice is frequently used in the United Kingdom to add to pancakes, especially on Shrove Tuesday.

Lemon juice is also used as a short-term preservative on certain foods that tend to oxidize and turn brown after being sliced, such as apples, bananas and avocados, where its acid denatures the enzymes that cause browning and degradation. Lemon juice and rind are used to make marmalade and lemon liqueur.

Lemon slices and lemon rind are used a garnish for both food and drinks.

Lemon zest, the grated outer rind of the fruit, is used to add flavor to baked goods, puddings, rice and other dishes.

Pickled lemons are a Moroccan delicacy.

Lemon leaves can be used to make a tea or preparing cooked meats and seafoods. For better taste older, dark-green leaves are suggested. The lemon tea also can serve a medicinal purpose. Lemon leaves are considered to be helpful as an anti-inflammatory agent and aid to digestion or in reducing fevers and cramps. The lemon leaf tea also acts as a cough medicine.

Non Culinary Use

Aromatherapy, first aid and medicine

In one of the most comprehensive scientific investigations done yet, researchers at The Ohio State University revealed lemon oil aroma used in aromatherapy does not influence the human immune system, but may enhance mood.

The low pH of juice makes it antibacterial.

Commercial use

Lemons were the primary commercial source of citric acid prior to the development of fermentation-based processes.

A halved lemon is used as a finger moistener for those counting large amounts of bills, such as tellers and cashiers.

Household use

The peel oil is used as a wood cleaner and polish, where the solvent property of d-limonene is employed to dissolve old wax, fingerprints, and grime.

A halved lemon dipped in salt or baking powder can be used to brighten copper cookware. The acid dissolves the tarnish and the abrasives assist the cleaning.

As a sanitary kitchen deodorizer the juice can deodorize, remove grease, bleach stains, and disinfect; when mixed with baking soda, it can remove stains from plastic food storage containers.

Insecticide

The d-limonene in lemon oil is used as a nontoxic insecticide treatment. See orange oil.

Glen O. Brechbill
Science education

A popular science experiment in schools involves attaching electrodes to a lemon and using it as a battery to produce electricity. Although very low power, several lemon batteries can power a small digital watch. These experiments also work with other fruits and vegetables.

Lemon juice is sometimes used as an acid in educational science experiments.
Lime from Arabic and French lime is a term referring to a number of different citrus fruits, both species and hybrids, which are typically round, green to yellow in colour, 3–6 cm in diameter, and containing sour and acidic pulp. Limes are a good source of vitamin C. Limes are often used to accent the flavours of foods and beverages. Limes are grown all year round and are usually smaller and more sour than lemons.

Cooking

In cooking, lime is valued both for the acidity of its juice and the floral aroma of its zest. It is a very common ingredient in authentic Mexican, Southwestern United States, Vietnamese and Thai dishes. It is also used for its pickling properties in ceviche. The use of dried limes (called black lime or loomi) as a flavouring is typical of Persian cuisine and Iraqi cuisine, as well as in Gulf-style baharat (a spice mixture that is also called kabsa or kebsa). Lime is an essential ingredient of any cuisine from India, and many varieties of pickles are made, e.g. sweetened lime pickle, salted pickle, and lime chutney.[2][3]

Lime leaves are also an herb in South, East, and Southeast Asia. Lime is frequently used to add flavour to cold and hot drinks, including water, tonic and other cocktails.

Other uses

To prevent scurvy during the 19th century, British sailors were issued a daily allowance of citrus, such as lemon, and later switched to lime, which was not as effective at preventing scurvy but was easier to obtain on Britain's Caribbean colonies. It was later discovered that the greater effectiveness of lemons derived from the 4-fold higher quantities of vitamin C lemon juice contains compared to the West Indian limes used by the British. This was initially a closely guarded military secret, as scurvy was a common enemy of various nation's navies, and being able to be at sea for lengthy periods without contracting scurvy was a huge military benefit. The British sailor acquired the nickname of being a Limey because of their usage of limes.

Lime juice is the juice of limes (citrus). It may be squeezed from fresh limes, or purchased in bottles in both unsweetened and sweetened varieties. Lime juice is used to make limeade, and as an ingredient (typically as sour mix) in many cocktails.

Lime extracts and essential oils are frequently used in perfumes, cleaning products, and aromatherapy.

In India, the lime is used in Tantra for removing evil spirits. It is also combined with Indian chillies to make a protective charm to repel the evil eye. Furthermore, it was believed that hanging limes over sick people cured them of the illness by repelling evil spirits lurking inside the body.

Health effects

When the skin is exposed to ultraviolet light after lime juice contact, a reaction known as phytophotodermatitis can occur, which can cause darkening of the skin, swelling or blistering. The agent
responsible for this is psoralen. Lime contains 24 milligrams less vitamin C per 100 grams than the lemon.

Production Trends

India, with about 16% of the world's overall lemon and lime output, tops the production list, followed by Mexico (~14.5%), Argentina (~10%), Brazil (~8%), and Spain (~7%).

Production - 2007

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</table>

Plants Known as Lime

Australian limes

Australian desert lime (Citrus glauca)

Australian finger lime (Citrus australasica)

Australian round lime (Citrus australis)

Blood lime

Kaffir lime (Citrus hystrix) (kaffeeer lime; makrut, or magrood)

Key lime (Citrus aurantifolia) (Mexican, West Indian, or bartender's lime)

Mandarin Lime (Citrus limonia)

Musk lime (Citrofortunella mitis)

Palestine sweet lime (Citrus x limettioides)

Persian lime (Citrus x latifolia) (Tahiti or Bearss lime)

Rangpur lime, a mandarin orange-lemon hybrid

Spanish lime (Melicoccus bijugatus) (mamoncillo, mamón, ginep, quenepa, or limoncillo) (not a citrus)

Sweet lime (Citrus limetta) (sweet limetta, Mediterranean sweet lemon)

Wild lime (Adelia ricinella)

Limequat (lime × kumquat)

The tree known in Britain as the lime tree (Tilia sp.) is unrelated to the fruits.
Mandarin

The Mandarin orange, also known as the mandarin or mandarine (both lower-case), is a small citrus tree (Citrus reticulata) with fruit resembling other oranges. Mandarin oranges are usually eaten plain or in fruit salads. Specifically reddish-orange mandarin cultivars can be marketed as tangerines, but this is not a botanical classification.

The tree is more drought-tolerant than the fruit. The mandarin is tender, and is damaged easily by cold. It can be grown in tropical and subtropical areas.

Varieties

The mandarin orange is a variety of the orange family. The mandarin has many names, some of which actually refer to crosses between the mandarin and another citrus fruit.

Satsuma, a seedless variety, of which there are over 200 cultivars, such as Owari and mikan; the source of most canned mandarins, and popular as a fresh fruit due to its ease of consumption.

Owari, a well-known Satsuma cultivar which ripens during the late fall season.

Clementine, sometimes known as a "Christmas orange", as its peak season is December; becoming the most important commercial Mandarin orange form, have displaced mikan in many markets.

Tangerine sometimes known as "Dancy Mandarin"

Tangor, also called the temple orange, a cross between the Mandarin orange and the common sweet orange; its thick rind is easy to peel and its bright orange pulp is sour-sweet and full-flavored.

Biological Characteristics

The mandarin is easily peeled with the fingers, starting at the thick rind covering the depression at the top of the fruit, and can be easily split into even segments without squirting juice. This makes it convenient to eat, as utensils are not required to peel or cut the fruit.

Canned mandarin segments are peeled to remove the white pith prior to canning; otherwise, they turn bitter. Segments are peeled using a chemical process. First, the segments are scalded in hot water to loosen the skin; then they are bathed in a lye solution which digests the albedo and membranes. Finally, the segments undergo several rinses in plain water.

During Chinese New Year, Mandarin oranges and tangerines are considered traditional symbols of abundance and good fortune. During the two-week celebration, they are frequently displayed as decoration and presented as gifts to friends, relatives, and business associates.

Citrus fruits are usually self-fertile (needing only a bee to move pollen within the same flower) or parthenocarpic (not needing pollination and therefore seedless, such as the satsuma).

Blossoms from the Dancy cultivar are one exception. They are self-sterile, and therefore must have a pollinator variety to supply pollen, and a high bee population to make
a good crop. The fruit is oblate.

Medicanal Uses

In traditional Chinese medicine, the dried peel of the fruit is used in the regulation of ch'i, and also used to treat abdominal distension, to enhance digestion, and to reduce phlegm. Mandarins have also been used in ayurveda (traditional medicine of India).

Production - 2007

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</tr>
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</table>

The "Clemenules" (or "Nules", the Valencian town where it was bred) accounts for the great majority of clementines produced in the world. Spain alone has over 200,000 acres (800 km²), producing fruit between November and January. Mandarins marketed as tangerines are usually Dancy, Sunburst or Murcott (Honey) cultivars.
Tangelo

The tangelo TAN-j-loh; C. reticulata × C. maxima or × C. paradisi), Citrus × tangelo, is a citrus fruit hybrid of tangerine and pomelo or grapefruit. Widely known as honeybells, tangelos are the size of an adult fist, have a tangerine taste, and are juicy at the expense of flesh. They generally have loose skin and are easier to peel than oranges, readily distinguished from them by a characteristic "nipple" at the stem.

Varieties of Tangelo’s

Orlando

The early maturing Orlando tangelo is noted for its juiciness, mild and sweet flavor, large size, and flat-round shape with a characteristic knob. California/Arizona tangelos have a slightly pebbled texture, good interior and exterior color, very few seeds, and a tight-fitting rind. Orlando tangelos are available from mid-November to the beginning of February. It originated as a cross between a Duncan grapefruit and a Dancy tangerine. W. T. Swingle of the United States Department of Agriculture (USDA) is credited with creating the hybrid in 1911. When the Orlando tangelo was first cultivated, it was known by the name Lake tangelo. The trees of this variety grow to a large size and are easily recognized by their cup-shape leaves. Orlando tangelos are recognized as one of the more cold-tolerant varieties.

Minneola

The Minneola tangelo (sometimes misspelled "Mineola") is a cross between a Duncan grapefruit and a Dancy tangerine, and was released in 1931 by the USDA Horticultural Research Station in Orlando. It is named after Minneola, Florida. Most Minneola tangelos are characterized by a stem-end neck, which tends to make the fruit appear bell-shaped. Because of this, it is also called the Honeybell in the gift fruit trade, where it is one of the most popular varieties. The fruit is usually fairly large, typically 9 - 9½ inches in circumference. The peel color, when mature, is a bright-reddish-orange color. The rind is relatively thin, so the fruit peels easily. It is quite juicy. The Minneola is not strongly self-fruitful, and yields will be greater when interplanted with suitable pollenizers such as Temple tangor, Sunburst tangerine, or possibly Fallglo tangerine. It tends to bear a good crop every other year. The fruit matures in the December-February period, with January being the peak.

Drug Interactions

One study so far has shown that, unlike grapefruit, interactions with statins are not likely with tangelos, even though it is derived from a grapefruit crossed with a tangerine. It seems that the furocoumarins in grapefruit are not expressed in tangelos, so some reactions are temporary.
The tangerine (Citrus tangerina) is an orange-colored citrus fruit which is closely related to the Mandarin orange (Citrus reticulata). Taxonomically, it may be named as a subspecies or variety of Citrus reticulata; further work seems to be required to ascertain its correct scientific name. Tangerines are smaller than most oranges, and are usually much easier to peel and to split into segments. The taste is often less sour, or tart, than that of an orange. While less tart, tangerines are considered to be sweeter than oranges.

What can be considered by some to be a good tangerine will be firm to slightly soft, heavy for its size, and pebbly-skinned with no deep grooves, as well as orange in color. Peak tangerine season lasts from October to April in the Northern Hemisphere. Tangerines are most commonly peeled and eaten out of hand. The fresh fruit is also used in salads, desserts and main dishes. The peel is dried and used in Sichuan cuisine. Fresh tangerine juice and frozen juice concentrate are commonly available in the United States. The number of seeds in each segment (carpel) varies greatly.

A popular alternative to tangerines are clementines, which are called seedless tangerines and are also a variant of the mandarin orange.

History

Tangerines have been cultivated for over 3,000 years in China. They are also high in concentration in present day Burma. Tangerines have been found in many shapes and sizes, from as small as a small walnut, to larger than an average orange.

Varieties

Honey tangerines (murcotts as it is called in the industry) are the most widely grown tangerine, trailed by the sunburst tangerine, and with lowest amount of acreage the fall-glo.

One of the oldest and formerly most popular varieties is the Dancy tangerine, but it is no longer widely grown. The Dancy was known as the zipper-skin tangerine, and also as the kid-glove orange, for its loose, pliable peel.

The ponkan or Chinese honey tangerine is very popular around Melrose, Florida, where it was introduced from China by a missionary, Rev. Barrington, in 1883. It is easily peeled, much like a Satsuma mandarin, but has more flavor and grows true from the seeds. Growing tangerines from the seeds may take longer, as usually seven or eight years are required before the first fruit, but the trees will be more cold hardy than a similar grafted tree (even if grafted onto the cold hardy trifoliate orange rootstock) and larger. Seedlings must be kept moist until planting. If they dry out they will not germinate. Oranges do not always come true from seeds due to pollination and hybridization problems, but nearly all tangerines can be grown true from seed, contrary to popular notions.

Nutrition

Tangerines are a good source of vitamin C, folate and beta-carotene. They also contain some
potassium, magnesium and vitamins B1, B2 and B3. Tangerine oil, like all citrus oils, has limonene as its major constituent, but also alpha-pinene, myrcene, gamma-terpinene, citronellal, linalool, neral, neryl acetate, geranyl acetate, geraniol, thymol, and carvone.

New research from The University of Western Ontario has discovered a substance in tangerine skins that not only prevents obesity in mice, but also offers protection against type 2 diabetes, and even atherosclerosis, the underlying disease responsible for most heart attacks and strokes. Murray Huff, a vascular biology scientist at the Schulich School of Medicine & Dentistry, along with Erin Mulvihill, a PhD student, studied the effects of a flavonoid in tangerines called Nobiletin. Their research is published in the journal Diabetes.

Origin of Name

According to the Oxford English Dictionary, the word "tangerine" was originally an adjective meaning "Of or pertaining to, or native of Tangier, a seaport in Morocco, on the Strait of Gibraltar" and "a native of Tangier." The OED cites this usage from Addison's The Tatler in 1710 with similar uses from the 1800's. The adjective was applied to the fruit, once known scientifically as "Citrus nobilis var. Tangeriana" which grew in the region of Tangiers. This usage appears in the 1800's.
The Citrus Notes of Fragrance

A & E Connock Ltd. - United Kingdom

Essential Oils & Aromatic Chemicals

Book #1 ( A - H )

Essential Oils

Grapefruit Red
Grapefruit White
Green Mandarin

Lemon
Lemon Balm ( Melissa )
Lemon Myrtle
Lemon Verbena
Lime Distilled

Mandarin Red
Mandarin Yellow

Orange ( Bitter and Sweet )

Tangerine

Distillates

Lemon
Adrian Industries SAS - France

Products

Essential Oils

Bergamot

Grapefruit

Lemon

Lime CP

Lime Distilled

Litsea Dubeba

Mandarin

Orange Biter

Orange Brazil

Orange Florida

Orange Guinea

Orange Honduras

Orange Israel

Orange Italy

Tangerine

Aromatic Raw Materials

Citral ex Litsea Cubeba

Citrus Corps

D-Limonene

Dihydromyrcenol

Grapefruit - Corps

Limenone Laevo

Limonene Dextro

Organic Essential Oils & Extracts

Bergamont Oil

Citrus Aurantium Reticulata

Grapefruit Oil - Citrus Paradisi

Lemon Oil - Citrus Limon

Orange Oil - Citrus Sinensis

Orange Bitter Oil -

Citrus Aurantium

Glen O. Brechbill

Fragrance Books Inc. @www.perfumerbook.com
The Citrus Notes of Fragrance

Albert Vieille SA - France

Matieres Premietres Aromatiques

Essential Oils

Bergamot Oil - Ivory Coast, Italy
Bergamot Oil Bergaptene Free
Bitter Orange Oil Expressed - Italy
Bitter Orange Oil Ex - Ivory Coast

Lemon Oil - France
Lemon Oil - bergaptene free
Lemon Oil - Italy
Lemon Oil - Spain

Mandarin Red Oil - Italy
Mandarin Yellow Oil - Italy

Orange Pera Oil - Brazil

Sweet Orange Oil - Italy

Tangerine Oil - Brazil
Alfa Chem - USA

Fine Arroma Materials

Essential Oils

Bergamot Oil non-sensitizing
Bergamot Oil non-sensitizing C.P.
Bergamot Oil Italian
Bergamot Oil Ivory Coast
Bergamot Oil rectified
Bitter Orange Oil C.P.
Bitter Orange Oil 5-Fold

Grapefruit Oil Argentina C.P.
Grapefruit Oil Brazil C.P.
Grapefruit Oil California C.P.
Grapefruit Oil Florida C.P.
Grapefruit Oil Israel C.P.
Grapefruit Oil South Africa C.P.
Grapefruit Oil Pink C.P.
Grapefruit Oil 50-Fold
Grapefruit Oil 10-Fold
Grapefruit Oil Terpenes

Lemon Oil Argentina C.P.
Lemon Oil Arizona C.P.
Lemon Oil California C.P.
Lemon Oil Israel C.P.
Lemon Oil Italian C.P.
Lemon Oil South African C.P.
Lemon Oil non-sensitizing
Lemon Oil Distilled
Lemon Oil Washed
Lemon Oil 5-Fold
Lemon Oil 10-Fold
Lemon Oil Terpenes

Litsea Cubeba Oil
Litsea Cubeba Oil Rectified
Litsea Cubeba Oil Terpenes

Lime Oil Distilled Haiti
Lime Oil Distilled Ivory Coast
Lime Oil Distilled Mexican
Lime Oil Distilled Peruvian
Lime Oil Expressed ‘A’ Mexican
Lime Oil Expressed ‘B’ Peruvian
Lime Oil Expressed Persian
Lime Oil Expressed Tahiti
Lime Oil non-sensitizing
Lime Oil 5-Fold
Lime Oil Washed

Lemon Oil Distilled
Lemon Oil Bitter C.P.
Lemon Oil Bitter 5-Fold
Lemon Oil Brazilian C.P.
Lemon Oil California C.P.
Lemon Oil Guinea C.P.
Lemon Oil Distilled
Lemon Oil Brazil C.P.
Lemon Oil Florida C.P. Midseason
Lemon Oil Florida C.P. Valencia
Lemon Oil Brazilian Distilled
Lemon Oil Florida Distilled

Orange Oil 5-Fold
Orange Oil 10-Fold
Orange Oil Terpenes

Citral synthetic
Citral natural
Di Hydro Myrcenol
L-Limonene
Limonene Dextro
Limonene Laevo

Mandarin Oil Brazilian Green C.P.
Mandarin Oil Red C.P.
Mandarin Oil Brazilian Yellow C.P.
Mandarin Oil Italian C.P.

Aromatic Chemicals

Citral synthetic
Citral natural
Di Hydro Myrcenol
L-Limonene
Limonene Dextro
Limonene Laevo

Mandarin Oil Brazilian Green C.P.
Mandarin Oil Red C.P.
Mandarin Oil Brazilian Yellow C.P.
Mandarin Oil Italian C.P.

Aromatic Chemicals

Citral synthetic
Citral natural
Di Hydro Myrcenol
L-Limonene
Limonene Dextro
Limonene Laevo

Mandarin Oil Brazilian Green C.P.
Mandarin Oil Red C.P.
Mandarin Oil Brazilian Yellow C.P.
Mandarin Oil Italian C.P.
Amen Organics - India

Products

Essential Oils

Bergamot Mint Oil
Bergamot Oil

Grape Fruit Oil

Lemon Oil

Lime Oil

Mandarin Oil

Orange Oil (Distilled)
Orange Oil Bitter
Orange Oil Sweet
Orange Peel Oil

Sweet Orange Oil

Tangerine Oil
American Society of Perfumers - USA

Classification of Olfactory Notes

Citrus Note

Bergamot
Bitter Orange

Grapefruit

Lemon
Lime

Mandarin

Sweet Orange

Tangerine

Citrus Note - Aromatic Chemicals

Citral
Citronellal
Citronellyl Acetate

Dihydro Myrcenol

Gerano Nitrile

d-Limonene
Linalyl Acetate

Myrac Aldehyde
Myrcenyl Acetate
The Citrus Notes of Fragrance

Anupan Industries - India

Product Catalog

Aroma

<table>
<thead>
<tr>
<th>Aldehyde C - 8</th>
<th>Ocimene</th>
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<tbody>
<tr>
<td>Aldehyde C - 9</td>
<td>Orange Oil</td>
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<td>Aldehyde C - 10</td>
<td>Pamplefleur</td>
</tr>
<tr>
<td>Bergamal</td>
<td>Tangerinol</td>
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<td>Bergamot</td>
<td>Tetra Hydro Linalool</td>
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<td>Bergamot Oil NC</td>
<td>Triplal</td>
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<td>Citral</td>
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<tr>
<td>Citronellal</td>
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<tr>
<td>Clonal</td>
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<td>Decatone</td>
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<tr>
<td>Di Hydro Myrcenol</td>
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<tr>
<td>Dimyrcetol</td>
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<tr>
<td>Geranyl Nitrile</td>
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<td>Kalamanzest</td>
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<td>Lemon Oil NC</td>
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<tr>
<td>Lemonile</td>
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<tr>
<td>Lime Oxide</td>
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<tr>
<td>Methyl Heptenone Pure</td>
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<td>Methyl Pamplemousse</td>
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<tr>
<td>Myrac Aldehyde</td>
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<tr>
<td>Neroli NC</td>
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<tr>
<td>Neroli Super NC</td>
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</tbody>
</table>
Aromatiac Collection - France

Endroit Produits

Essential Oils

Bergamot Oil Bergapten Free
Bergamot Oil Italian
Bergamot Oil Ivory Coast
Bitter Orange Oil

Lemon Oil Italian
Lemon Oil Spanish
Lemon Oil Folded

Mandarin Oil Italian Green
Mandarin Oil Italian Red
Mandarin Oil Italian Yellow

Orange Oil Folded

Natural Isolates

Citral Ex Litsea

D-Limonene Dextro Pure

Natural Derivatives

Lemon Terpenes
The Citrus Notes of Fragrance

Aromatic International LLC - USA

Odor Profiles

Citrus

Bergamot
Citronella
Grapefruit
Lemon
Lemongrass
Lime
Mandarin
Neroli
Orange
Petitgrain
Tangerine
Verbena
Aromatics Adl - France

Catalogue Des Produits

Essences Aromatiques

- Bergamote Cote D’Ivoire
- Bergamote Distillee Italie
- Bergamote Zeste Italie
- Grapefruit Californie CP Blanc
- Grapefruit Californie CP Rose
- Grapefruit Californie Oil Phase
- Grapefruit Californie Water Phase
- Limette Distillee Haiti
- Limette Distillee Mexique
- Limette Expression Mexique
- Litsea Cubeba
- Mandarine Jaune Italie
- Mandarine Rouge Italie
- Mandarine Verte Italie
- Orange Bresil Pera
- Orange Californie Cold Pressed
- Orange Californie Oil Phase
- Orange Californie Water Phase
- Orange Guinee
- Orange Italie

Produits Aromatiques DefinisEx
Naturel Et Synthetiques

- Citral Ex Litsea Cubeba
- Citral Ex Lemongrass
- Citral 80 %

Glen O. Brechbill
Aromor Flavors & Fragrances Ltd. - Israel

Products

Natural Nootkatone 50 - 60 %
Natural Nootkatone 60 - 70 %
Natural Nootkatone 70 - 80 %
Natural Nootkatone 80 - 85 %
Natural Nootkatone 85 - 87 %
Natural Nootkatone Crystals
Nootkatone 50 - 60 %
Nootkatone 60 - 70 %
Nootkatone 70 - 80 %
Nootkatone 80 - 85 %
Nootkatone 85 - 87 %
Nootkatone Crystals Min 97 %

Orange Carbonyls

Valencene 50 - 75 %
Valencene 75 %
Artiste Flavor / Essence - USA

Fragrances & Specialty Ingredients

**Folded Cold Pressed Oils**
- Bergamot Oil Italian 3 - Fold
- Lemon Oil Italian 5 - Fold
- Mandarin Oil Italian, 4 - Fold
- Orange Oil Florida 5 - Fold, 10 - Fold
- Orange Oil Italian 5 - Fold, 10 - Fold

**Essence Oils**
- Grapefruit Essence Oil Florida
- Lemon Essence Oil
- Lime Essence Oil
- Orange Essence Oil Florida
- Orange Essence Oil Florida 3 - Fold

**Natural Isolates**
- Citral ex Litsea min 92 % FCC
- Decanal ( Orange C10 Ald )
- D’Limonene

**Nootkatone 50 %**
- Octanel ( Orange C8 Ald )
- Orange Light Fractions ( Ethyl Butyrate 10 % )
- Valencene - ex Orange ( 50 %, 60 %, 70 % )

**Types**
- Lemon Oil Calif. Type
- Orange Oil Calif. Type

**Citrus Aromas**
- Grapefruit Aroma
- Lemon Aroma
- Orange Aroma
- Orange Juice Aroma

**FTNF Add Backs**
- Florida Grapefruit - Top Note
- Florida Grapefruit - Versatile
- Florida Orange - Top Note
- Florida Orange - Versatile

**Terpenes**
- Bergamot Italian
- Clementine Italian
- Lemon Italian
- Mandarin Italian
- Orange Florida
- Orange Italian

**Terpenesless**
- Florida Grapefruit - Top Note
- Florida Grapefruit - Versatile
- Florida Orange - Top Note
- Florida Orange - Versatile

- Mandarin Oil Italian
- Orange Oil Italian
- Orange Oil Florida

Decolorized
Astral Extracts - USA

Products

Citrus Oils

Grapefruit

Bergamot

Lemon

Lime

Grapefruit Oil,
( White, Pink, Red )

Orange

Lemon

Lime

Lime Mexican

Lime Persian

Mandarin

Orange ( Mid Season Orange, Valencia Orange )

Tangerine

Citrus Essence Oils Aqueous & Oil Phase

Grapefruit

Lemon

Lime

Orange

Cold Pressed Citrus Oils, Citrus Essences

D-Limonene
Augustus Oils Ltd. - United Kingdom

Fragrance Specialties

Essential Oils

Bergamot Oils

Lemon Oils
Lime Oils

Mandarin Oil Red
Mandarin Oil Yellow

Tangerine Oils
The Citrus Notes of Fragrance

Australian Botanical Products Pty. Ltd. - Australia

**Essential & Citrus Oils**

<table>
<thead>
<tr>
<th>Essential Oil</th>
<th>Origin</th>
<th>Citrus Essential Oils Folded</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bergamot Calabrian Supreme</td>
<td>California, Florida, Israel,</td>
<td>Bergamot - 4-fold, Bergaptene Free</td>
</tr>
<tr>
<td>Bergamot Mint</td>
<td>South Africa</td>
<td></td>
</tr>
<tr>
<td>Bergamot Non Phototoxic</td>
<td>Grapefruit, Red - Israel, Florida</td>
<td></td>
</tr>
<tr>
<td>Grapefruit Australian</td>
<td>Grapefruit, White - Italy, Spain, Argentina, Belize, Brazil, California, Cyprus, Florida, Israel</td>
<td></td>
</tr>
<tr>
<td>Grapefruit Pink</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Lemon Distilled</td>
<td>Lemon - Argentina, Brazil, California, Cyprus, Greece, Israel, Italy, Africa, Spain</td>
<td></td>
</tr>
<tr>
<td>Lemon Cold Pressed</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Lemon Myrtle</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Lemon Scented Eucalyptus</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Lemon Scented Tea Tree</td>
<td>Lime Distilled - Mexico, Peru, West Indies</td>
<td></td>
</tr>
<tr>
<td>Lemon Verbena Genuine</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Litsea Cubeba</td>
<td>Lime Cold Pressed - Brazil, Haiti, Persain, Tahiti, Mexico</td>
<td></td>
</tr>
<tr>
<td>Mandarin Cold Pressed</td>
<td>Litsea Cubeba - Brazil, China, Florida</td>
<td></td>
</tr>
<tr>
<td>Mandarin CP Australian</td>
<td>Mandarin, Green - Italy, Brazil</td>
<td></td>
</tr>
<tr>
<td>Mandarin CP Sicilian Premium</td>
<td>Mandarin, Red - Argentina, Italy, Spain</td>
<td></td>
</tr>
<tr>
<td>Tangerine</td>
<td>Mandarin, Yellow - Italy, Brazil</td>
<td></td>
</tr>
</tbody>
</table>

**Citrus Oils - Single Fold:**

<table>
<thead>
<tr>
<th>Essential Oil</th>
<th>Origin</th>
<th>Citrus Essential Oils Folded</th>
</tr>
</thead>
<tbody>
<tr>
<td>Orange</td>
<td>Belize, Brazil, California, Florida Midseason, Florida Valencia, Italy, Morocco, South Africa, Spain, Greece, Valencia</td>
<td>Orange - 2-fold, 3-fold, 4-fold 5-fold, 7-fold, 8-fold 10-fold, 15-fold, 20-fold 25-fold, 30-fold, terpeneless</td>
</tr>
<tr>
<td>Blood Orange</td>
<td>Brazil, Ivory Coast, Italy, Spain, Dominican Republic</td>
<td>Tangerine - 3-fold, 5-fold, terpeneless</td>
</tr>
<tr>
<td>Grapefruit, Pink</td>
<td>Argentina, California, Florida, Israel</td>
<td></td>
</tr>
</tbody>
</table>

**Citrus & Specialties**

<table>
<thead>
<tr>
<th>Essential Oil</th>
<th>Origin</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bitter Orange - Italy, Ivory Coast</td>
<td></td>
</tr>
<tr>
<td>Blood Orange - Brazil, Ivory Coast, Italy, Spain, Dominican Republic</td>
<td></td>
</tr>
<tr>
<td>Tangerine</td>
<td></td>
</tr>
</tbody>
</table>
Specialties

ENRICHED ESSENTIAL OILS - ALL FOLDED WITH TOP NOTES -

Lemon Juice Carbonyles
Lemon Type “Mirarome”

Orange Boosters
Orange Carboxyls / OJ Carbonyles
Orange Oil Head Fraction
Orange Dark Oil - Highly conc.
Orange Essence top notes
Orange Essence head fraction - 10-fold, 25-fold
Orange Juice extracts
Orange extracts Jaffa
Orange Water phase essence concentrate
Orange Type “Mirarome”

DISTILLATES:

Lime Terpenes - Washed, distilled
Litsea Cubeba Terpenes
Mandarin Terpenes - Distilled
Orange Terpenes

NATURAL ISOLATES:

Natural Citral ex Litsea Cubeba
d-Limeone
Linalool
Nonanal 30, 50 %
Octanal - Orange C - 8
Decanal - Orange C - 10
Sinensal fractions
Valencene fractions
Nootkatone fractions
Acetaldehyde
Myrcene
Ethyl Buthyrate fractions
Methyl Heptonon fractions

TERPENES:

Grapefruit Terpenes - Distilled
Lemon Terpenes - Washed, 5-fold, 10-fold, distilled
BASF - Germany

Products

Citral Extra
Citral FCC
Citral FG
Citronellal
Citronellyl Nitrile
BASF - Japan

Fine Chemicals

Citral Extra
Citral FCC
Citral FG
Citronellal
Citronellyl Nitrile
BFA Laboratoires - France

Essential Oils & Specialties

Lemon C.P.
Lemon 2 - Fold
Lemon Cold Concentrated 8 - Fold
Lemon Sequisterpeneless
Lemon Aldehydes 60 %
Lemon Expression
Lime ( distilled ) Concentrated
Lime Sequisterpeneless
d-Limonene ex orange

Mandarin 4 - Fold

Orange 2, 5 - Fold
Orange Aldehydes 50 %

Fruit Infusions

Lemon Zest

Orange Bitter Zest
B.S. Industries - India

Essential Oils

Bergamot Oil
Clementine Oil
Lemon Oil
Lime Oil
Orange Oil
### Essential Oils

<table>
<thead>
<tr>
<th>Bergamot</th>
<th>Sweet Orange</th>
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</thead>
<tbody>
<tr>
<td>Bergamot Oil</td>
<td>Orange Oil Blood</td>
</tr>
<tr>
<td>Bergamot Oil Bergaptene Free</td>
<td>Orange Oil Colourless</td>
</tr>
<tr>
<td>Bergamot Oil Colourless</td>
<td>Orange Oil Terpeneless</td>
</tr>
<tr>
<td>Bergamot Oil Pesticides Free</td>
<td>Sweet Orange Oil</td>
</tr>
<tr>
<td>Bitter Orange</td>
<td>Sweet Orange Oil 5 Fold</td>
</tr>
<tr>
<td>Bitter Orange Oil</td>
<td>Sweet Orange Oil 10 Fold</td>
</tr>
<tr>
<td>Bitter Orange</td>
<td>Sweet Orange Oil Pesticides Free</td>
</tr>
<tr>
<td>Distilled</td>
<td>On demand we can supply also:</td>
</tr>
<tr>
<td>Bergamot Oil Distilled</td>
<td>Clementine Oil</td>
</tr>
<tr>
<td>Lemon Oil Distilled</td>
<td>Grapefruit Oil</td>
</tr>
<tr>
<td>Lemon</td>
<td>Lime Oil</td>
</tr>
<tr>
<td>Lemon Oil</td>
<td>Petitegrain Bigarade</td>
</tr>
<tr>
<td>Lemon Oil 5 Fold</td>
<td>Petitegrain Citronnier</td>
</tr>
<tr>
<td>Lemon Oil 10 Fold</td>
<td>Petitegrain Mandararin</td>
</tr>
<tr>
<td>Lemon Oil Colourless</td>
<td></td>
</tr>
<tr>
<td>Lemon Oil Pesticides Free</td>
<td></td>
</tr>
<tr>
<td>Lemon Oil Terpeneless</td>
<td></td>
</tr>
<tr>
<td>Mandarin</td>
<td></td>
</tr>
<tr>
<td>Mandarin Green Oil</td>
<td></td>
</tr>
<tr>
<td>Mandarin Red Oil</td>
<td></td>
</tr>
<tr>
<td>Mandarin Yellow Oil</td>
<td></td>
</tr>
<tr>
<td>Mandarin Colourless Oil</td>
<td></td>
</tr>
</tbody>
</table>

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Fragrance Books Inc. @www.perfumerbook.com
Bansal Aroma - India

Product List

Bergamot Oil
Grape Fruit Oil
Lime Oil
Litsea Cubeba Oil
Mandarin Oil
Orange Oil
Tangerine Oil
Barosyl S.A. - France

Essential Oils

Bergamot Italian
   Citrus Bergamia
Bergamot Mint
   Mentha Citrata

Clementine
   Citrus Reticulata Zest

Grapefruit
   Citrus Paradisii Zest

Lemon
   Citrus Limon
Litsea Cubeba

Mandarin Green
   Citrus Reticulata Zest
Mandarin Red
   Citrus Reticulata
Mandarin Yellow
   Citrus Reticulata Zest

Orange Brazilian
   Citrus Sinensis Zest
Orange Spanish
   Citrus Sinensis Zest

Tangerine

The Citrus Notes of Fragrance
Bell Flavors & Fragrances - USA

Perfume Bases

Citrus Oil Concentrates

Grapefruit Oil Essence pink
Grapefruit Oil Essence white
Grapefruit 5 - fold
Grapefruit 10 - fold
Grapefruit Extrol™

Lemon Oil Essence
Lemon Oil 5 - fold
Lemon Oil 10 - fold
Lemon Extrol™

Lime Oil Essence
Lime Oil 5 - fold
Lime Oil 10 - fold
Lime Extrol™

Mandarin Oil Essence
Mandarin Oil 5 - fold
Mandarin Oil 10 - fold
Mandarin Extrol™

Orange Oil Essence
Orange Oil 5 - fold
Orange Oil 10 - fold
Orange Extrol™
Berje Inc. - USA

Essential Oils, Aroma Chemicals & Fragrance Specialties

Bergamot Oil BF
Bergamot Oil

Grapefruit Oil Pink C.P.
Grapefruit Oil White C.P.
Grapefruit Terpenes

Lemon Essence Oil
Lemon Oil Calif 5 Fold
Lemon Oil Calif Type
Lemon Oil Argentina
Lemon Oil Washed
Lemon Terpenes
Lime Oil C.P. Mexican
Lime Oil Distilled Mexican
Lime Oil Distilled Peru
Lime Oil Washed
Lime Terpenes
Litsea Cubeba Oil
Litsea Terpenes

Mandarin Oil Green
Mandarin Oil Red
Mandarin Terpenes
Mandarin Petitgrain Terpeneless

Orange Oil Terpeneless
Orange Terpenes

Aroma Chemicals

Orange Essence Oil
Orange Oil 5 Fold
Orange Oil Bitter W.I.
Orange Oil Bitter Brazil
Orange Oil S.A.
Orange Oil Midseason
Orange Oil Valencia

The Citrus Notes of Fragrance
Bordas Destilaciones Chinchurreta SA - Spain

Fine Essential Oils

<table>
<thead>
<tr>
<th>Lemon Oil, Spanish</th>
<th>Di Cyclo Pentenyl Propionate</th>
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<tbody>
<tr>
<td>Litsea Cubeba Oil</td>
<td>Di Hydro Myrcenol</td>
</tr>
<tr>
<td>Litsea Cubeba Terpenes</td>
<td>Di Hydro Myrcenol Terpenes</td>
</tr>
<tr>
<td>Orange Oil, Bigarade</td>
<td>Di Hydro Myrcenyl Formate</td>
</tr>
<tr>
<td>Orange Oil, Sweet</td>
<td>Di Hydro Myrcenol Terpenes Def.</td>
</tr>
<tr>
<td>Fruit Derivatives</td>
<td>Dipentene</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Bitter Orange Peel</th>
<th>Gamma Terpinene 95</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bitter Orange Pulp</td>
<td>Gamma Terpinene 97</td>
</tr>
<tr>
<td>Bitter Orange Dummy</td>
<td>Limonene Dextro</td>
</tr>
<tr>
<td>Bitter Orange Concentrate</td>
<td>Limonene Laeo 65</td>
</tr>
<tr>
<td>Clarified Juice</td>
<td>Limonene Laeo 70</td>
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<tr>
<td>Grapefruit Dummy</td>
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</tr>
<tr>
<td>Grapefruit Peel</td>
<td></td>
</tr>
<tr>
<td>Grapefruit Pulp</td>
<td></td>
</tr>
<tr>
<td>Lemon Dummy</td>
<td></td>
</tr>
<tr>
<td>Lemon Peel</td>
<td></td>
</tr>
<tr>
<td>Lemon Pulp</td>
<td></td>
</tr>
<tr>
<td>Sweet Orange Dummy</td>
<td></td>
</tr>
<tr>
<td>Sweet Orange Peel</td>
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</tr>
<tr>
<td>Sweet Orange Pulp</td>
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</table>

Aroma Chemicals

<table>
<thead>
<tr>
<th>Citral Natural Technical</th>
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<tbody>
<tr>
<td>Citral Natural 90</td>
<td></td>
</tr>
<tr>
<td>Citral 2 95</td>
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</tr>
</tbody>
</table>
The Citrus Notes of Fragrance

Brighten Colorchem B.V. - The Netherlands

Product List of Aromatic Chemicals

Essential Oils

Lemon Oil

Aromatic Chemicals

Citral
Citral Di Ethyl Acetal
Citral Pure

Di Limonene
Cami de Fontanilles - Spain

Products

Spanish Origin

Lemon Oil

Mandarin Oil ( Clementine )

Orange Oil

Other Origin

Grapefruit Oil

Litsea Cubeba

Mandarin Oil Green

Mandarin Oil Red

Orange Brazil Oil
The Citrus Notes of Fragrance

Capua S.r.l. - Italy

Citrus Products

The Bergamots

Bergamot Oil Reggio  Typical bergamot green fresh top note product with bergaptene.
Bergamot Oil Reggio Flavours  Sweet fresh top note for flavours applications.
Bergamot Oil Bergaptene Free  Typical bergamot, sweet and fresh.
Bergamot Distilled Rectified  Bergaptene free. Very fresh bergamot note, zesty strong natural note.
Bergamot B/F 300 ppm  Typical note of a crude bergamot oil without the bergaptene. The closest to crude standard.
Bergamot Oil Terpeneless Extra  Very green, peely, zesty, bitter note.
Bergamot Terpenes  Fresh, light bergamot top note.

BERGAMOT SPECIALITIES

Bergamot Peel Phase  Very peely natural top note.
Bergamot Juice Phase  Sweet - unexpectedly spicy and juicy.
Bergamot Rectified x By Products  Typical Bergamot note.
Verger de Bergamote  Green flower.
### The Clementines

<table>
<thead>
<tr>
<th>Product</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Clementine Oil</td>
<td>Typical of clementine, very fruity.</td>
</tr>
<tr>
<td>Clementine Oil Decolorized</td>
<td>Typical clementine note.</td>
</tr>
<tr>
<td>Clementine Natural Extract</td>
<td>Decolorized version. Bitter peely fresh note.</td>
</tr>
<tr>
<td>Clementine Terpenes</td>
<td>Very peely fresh note.</td>
</tr>
<tr>
<td>Clementine Oil Folded</td>
<td>Available.</td>
</tr>
</tbody>
</table>

#### CLEMENTINE SPECIALITIES

<table>
<thead>
<tr>
<th>Product</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Clementine Phased</td>
<td>Decolorized version. Fruity and floral note.</td>
</tr>
</tbody>
</table>

### The Grapefruits

<table>
<thead>
<tr>
<th>Product</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Grapefruit DeterpenatedExtract</td>
<td>Clean grapefruit note, strong body - very persistent.</td>
</tr>
<tr>
<td>Grapefruit Phase C</td>
<td>Typical of grapefruit, no - Limonene off-note.</td>
</tr>
<tr>
<td>Grapefruit Phase C Natural</td>
<td>Typical of grapefruit, no - Limonene off-note, completely natural.</td>
</tr>
</tbody>
</table>

#### GRAPEFRUIT SPECIALITIES

<table>
<thead>
<tr>
<th>Product</th>
<th>Description</th>
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</thead>
<tbody>
<tr>
<td>Grapefruit Phase C</td>
<td>Typical of grapefruit, no - Limonene off-note.</td>
</tr>
<tr>
<td>Grapefruit Phase C Natural</td>
<td>Typical of grapefruit, no - Limonene off-note, completely natural.</td>
</tr>
<tr>
<td>Grapefruit Phase C</td>
<td>Typical of grapefruit, no - Limonene off-note, completely natural.</td>
</tr>
<tr>
<td>Grapefruit Phase C</td>
<td>Decolorized. Typical of grapefruit no limonene off-note.</td>
</tr>
</tbody>
</table>

### The Lemons

<table>
<thead>
<tr>
<th>Product</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lemon Oil Sfumatrice Winter</td>
<td>Typical Italian lemon, very zesty &amp; green top note.</td>
</tr>
<tr>
<td>Lemon Oil FMC Winter</td>
<td>Typical Italian - peely and fruity.</td>
</tr>
<tr>
<td>Lemon Oil Primofiore</td>
<td>Very green strong fresh top note, zesty.</td>
</tr>
<tr>
<td>Lemon Oil Decolorized</td>
<td>Peely, fruity and decolorized.</td>
</tr>
</tbody>
</table>
The Citrus Notes of Fragrance

**Lemon Specialties**

- **Lemon Oil Distilled**: Peely and green note.
- **Lemon Oil Furocoumarin Free**: Typical Italian note, strong body.
- **Lemon Oil Phase**: Juicy and fruity lemon note.

**THE MANDARINS**

- **Mandarin Green**: Typical of green mandarin, very fresh, zesty.
- **Mandarin Red**: Sweet juicy note.
- **Mandarin Reddish**: Sweeter than yellow with still zesty note.
- **Mandarin Yellow**: Typical of yellow mandarin, peely, pithy and fruit.
- **Mandarin Oil Water-White x Yellow**: Very peely fresh zesty mandarin note.
- **Mandarin Oil Decolorized**: Typical mandarin, fruity note.
- **Mandarin Green Deterpenated**: An extract that is fruity, aldehydic mandarin note.
- **Mandarin Folded**: Oils are available.

**Mandarin Specialties**

- **Mandarin Phase**: Mandarin - Flower - fruity note.
- **Mandarin Phase Decolorized**: Mandarin - Flower - fruity note.
- **Verger de Mandarine**: Sweet - Flower top note.
The Oranges

Orange Oil Biondo
Typical orange, fruity sweet

Orange Oil Tarocco
Typical blood orange, strong fruity, juicy note.

Orange Oil Tarocco Decolorized
Typical fruity tasty orange note, juicy.

Orange Oil Tarocco 5X
Very fruity and juicy orange note.

Orange Oil Tarocco % X
Decolorized oil. very fruity - juicy orange note without the colour.

Orange Oil Phase
Green, sweet orange juice note. Stable note.

Orange Oil Phase 5 X
Very juicy note - very stable note.

Orange Oil
Folded available.

ORANGE FAMILY SPECIALITIES

Orange Savon Concentrate
Very strong orange peely note - aldehydic

Orange Savon Residue Free
Very strong peely aldehydic orange note without the colour.

Bigarade Phase
Fresh, peely, bitter orange note.

Neroli Phase
Typical strong neroli note.

Tangerine Distilled
Fresh citrus note very floral.

The Petitgrains

Petitgrain Citronnier
Typical of Petitgrain Citronnier

Petitgrain Mandarinier
Typical of Petitgrain Mandarinier

Petitgrain Bigarade
Typical of Petitgrain Bigarade
### PETITGRAIN SPECIALITIES

<table>
<thead>
<tr>
<th>Product</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Petitgrain Oil</td>
<td>Less 40% Linalyl Acetate. Petitgrain note, clean, green with unexpected stability thanks to low Linalyl Acetate content.</td>
</tr>
<tr>
<td>Linalyl Acetate x Petitgrain Oil</td>
<td>Natural. New, white flower, top-note for Linalyl Acetate application.</td>
</tr>
</tbody>
</table>
Castrading - Korea

Essential Oils

Bergamot
Bergamot, Bergaptene Free

D’Limonene
D’Limonene, Rectified
D’Limonene, Octonol Free

Grapefruit, C.P. Pink
Grapefruit, C.P. White

Lemon, C.P. Argentina
Lemon, C.P. Brazil
Lemon, C.P. California
Lemon, C.P. Italy
Lemon Terpenes,
Lemon, Washed
Lime, Distilled Haiti
Lime, Distilled Mexico
Lime, C.P. Mexico
Lime, Distilled Peru
Lime Terpenes
Lime, C.P. Tahiti

Mandarin

Orange, Bitter, W.I.
Orange, C.P. Brazil
Orange, C.P. California
Orange, C.P. Florida
Orange Terpenes

Tangerine, C.P. Brazil
Tangerine, C.P. Dancy Type
Central States Chemical Marketing - USA

Bio Scent’s Product Catalog

Bergamot Oil - Italy BF
Grapefruit Oil White
Lemon Oil, CA Type
Lemon Terpenes
Lime Terpenes
Litsea Cubeba Oil
Mandarin Red Oil - Italy
Mandarin Yellow Oil - Italy
Orange Oil
Orange Oil 5 Fold
Champon Vanilla, Inc. - USA

Essential Oils & Aromatic Chemicals

Bergamont

Lemon Argentina
Lemon California
Lemon Desert
Lemon Italian
Lime Distilled
Litsea Cubeba

Mandarin

Orange Bitter C.P.
Orange Sweet

Tangerine Brazil / Florida

Aromatic Chemicals

Citral Natural / synthetic
Citronellal
Citronellyl Nitrile

D-Limonene
di Hydro Myrcenol

Menthanyl Acetate
Charabot & Company Inc. - France

Fine Essential Oils

Lemon Oil 5 Fold

Mandarin Italian Select
China Aroma Chemical Co., Ltd. - China

Essential Oils & Imported Products

Bergamot Oil
Bergamot Mint Oil

Grape Fruit Oil

Lemon Oil C.P.
Lime Oil
Lime Oil FX
Lime Oil 10 X
Litsea Cubeba Oil

Mandarin C.P.

Orange Oil ( Distilled )
Orange Peel Oil
Orange Pell Orange Oil Sweet
Orange Oil Sweet 5X
Orange Oil Sweet 10X
Orange Terpenes

Tangerine Oil C.P.
## China Perfumer - China

### On Line Catalogs

<table>
<thead>
<tr>
<th>Distributors For:</th>
<th>Mandarine Red Oil Argentina</th>
<th>Citral Lemarilla</th>
</tr>
</thead>
<tbody>
<tr>
<td>BASF AG</td>
<td>Orange Oil Brazil</td>
<td>Citrathal</td>
</tr>
<tr>
<td>Charabot SA</td>
<td>Orange Oil Guinea</td>
<td>Citrathal Conc. TW</td>
</tr>
<tr>
<td>Citrus &amp; Allied</td>
<td>Orange Oil Depterpene</td>
<td>Citrathal S TW</td>
</tr>
<tr>
<td>Danisco AG</td>
<td>Orange Bigarade Oil Brazil</td>
<td></td>
</tr>
<tr>
<td>Firmenich SA</td>
<td></td>
<td>Di Hydro Myrcenol</td>
</tr>
<tr>
<td>Givaudan SA</td>
<td></td>
<td>Di Hydro Myrcenyl Acetate</td>
</tr>
<tr>
<td>Midori Japan</td>
<td>Bergamote 136</td>
<td>Limettal</td>
</tr>
<tr>
<td>Noveon Kalama Inc.</td>
<td>Citroasis Base 129022</td>
<td></td>
</tr>
<tr>
<td>Quest International - Givaudan</td>
<td>Grapefruit Base 15794 F</td>
<td></td>
</tr>
<tr>
<td>Rhodia SA</td>
<td>Mandarinal 32048 SAE</td>
<td></td>
</tr>
<tr>
<td>Zeon Corporation</td>
<td>Givaudan SA</td>
<td></td>
</tr>
<tr>
<td>Essential Oils - Charabot SA</td>
<td>Dimetol</td>
<td></td>
</tr>
<tr>
<td>Bergamot Oil Italy</td>
<td>Grapefruit S Givco 230</td>
<td></td>
</tr>
<tr>
<td>Lemon Oil Italy</td>
<td>Lemarome N</td>
<td></td>
</tr>
<tr>
<td>Lemon Oil Ivory Coast</td>
<td>Lemonile</td>
<td></td>
</tr>
<tr>
<td>Lemon Oil South Africa</td>
<td>Orangia Givco 213</td>
<td></td>
</tr>
<tr>
<td>Lime Oil Distilled</td>
<td>Tangerinol</td>
<td></td>
</tr>
<tr>
<td>Lime Oil Distilled Haiti</td>
<td>Quest Intl. ( Givaudan )</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Citral Ex Litsea</td>
<td></td>
</tr>
</tbody>
</table>
Chinessence Ltd. - China

Key Products

Lemongrass Oil Yunnan
Litsea Cubeba Oil
Litsea Cubeba Oil Terpenes
Tangerine Oil Sichuan
Citral Oleos Essenciais Ltda. - Brazil

Perfume Bases, Essential Oils & Aromatic Chemicals

Bases Perfumaria

Bergamote Givco 104
Citrilys Givco 169
Grapefruit S Givco 230
Mandarina Artessence E 3321
Tangeris Givco 212

Perfumaria

Citral
Citralva
Citronelal
Citronelil Nitrile
Di Hydro Mircenol
Limetol
Metil Pamplemousse
Tangerinol
Citroflor di G. - Italy

Citrus Essential Oils

Oils from Citrus Fruits

Bergamot Oil
Bergamot Bergaptene Free

Lemon Oil

Mandarin Oil Green
Mandarin Oil Red
Mandarin Oil Yellow

Orange Oil Bitter
Orange Oil Sweet

Neroli

Petitgrain Bergamot
Petitgrain Bigarade
Petitgrain Lemon
Petitgrain Mandarin

Oils Rectified

Bergamot Oil Rectified

Clementin Oil Rectified

Lemon Oil Rectified

Mandarin Oil Rectified
The Citrus Notes of Fragrance

Citrus & Allied - USA

Citrus & Aroma Products

Natural Aroma Chemicals

Citra 95 %
Citral Extra EOA FCC
Citral Perfumery 95/95 %
Citral Super EOA FCC
Citronellal 95/99 % FCC

Nootketone 65/75 %
( Ex - Grapefruit Oil )

Valencene 80/85 %

Bergamot Oil

Bergamot Oil Terpenes
Bergamot Italian FCC
Bergamot Italian Rectified
( Furo Coumarin Free )
Bergamot Terpeneless Extra
Bergamot Reconstituted # 545
( Furo Coumarin Free )

Grapefruit Oil

Grapefruit Terpenes Ex-5-Fold
Grapefruit Florida
Sesquiterpenes
Grapefruit Florida C.p. FCC
( From Pink Fruit )
Grapefruit California Type C.p. FCC
Grapefruit California Type 10-Fold

Grapefruit Florida Type C.P. FCC ( From White Fruit )
Grapefruit Florida Type 2-Fold
Grapefruit Florida Type 3-Fold
Grapefruit Concentrate # 523
WoNF Concentrte
Grapefruit Florida Type 10-Fold
Grapefruit Terpeneless Cp FCC
( From Pink Fruit )
Grapefruit California Type 5-Fold
Grapefruit ( For Perfumery)
Grapefruit Enhancer # 440
natural & artificial
Nootketone 65/70 %
( ex-grapefruit Oil ) natural

Lemon Oil

Lemon Residues
( ex-terpenesless )
Lemon Extra Sesquiterpenesless
Lemon Terpenes Ex-5-fold
Lemon Petitgrain
Lemon Argentina Type C.p. FCC
Lemon Brazilian Type C.p.
Select FCC
Lemon California Type 5-Fold
Extra Rectified
( Furo Coumarin Free )
Lemon Italian Select
( Winter Crop )
Lemon Terpeneless Extra
Lemon Terpeneless Special

Lemon California C.P. FCC
( Italian Type )
Lemon Argentina Type
( 5-fold )
Lemon Washed 5-fold
Lemon Brazilian Type 5-fold
Lemon California Type C.p. (fcf)
Citressence Rectified
Lemon California Type C.p. FCC
( From Inland Fruit )
Lemon California C.P. WoNF
Lemon California Type Cp Extra Rectified
( Furo Coumarin Free )
Lemon Washed (alcohol reduced)
Lemon California type C.p.
Citressence FCC
Lemon California Type 5-fold
( From Inland Fruit )
Lemon California Type 5-Fold X
Lemon California Type 5-Fold X
Lemongrass Rectified
( Special Flexuosus Clone )
Lemongrass Guatemalan
Lemon Balm Oil
( Melissa American )

Lemon Essence Oil

Lemon Essence Oil
( Flavor Grade )
Lemon Essence Oil 5-Fold
Lemon Essence Oil ( Top notes )
<table>
<thead>
<tr>
<th>Lemon Essence Oil Enriched 5-Fold WoNF</th>
<th>Orange Valencia Sesquiterpeneless</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lime Distilled Oil</td>
<td>Orange California Type C.p. FCC</td>
</tr>
<tr>
<td>Lime Distilled Peruvian Type FCC</td>
<td>Orange Valencia 10-fold</td>
</tr>
<tr>
<td>Lime Distilled Mexican</td>
<td>Orange Brazilian Cp FCC</td>
</tr>
<tr>
<td>Sesquiterpeneless</td>
<td>( High Aldehyde Pera )</td>
</tr>
<tr>
<td>Lime Distilled West Indian Type FCC</td>
<td>Orange Brazilian 5-Fold</td>
</tr>
<tr>
<td>Lime Distilled Mexican Type FCC</td>
<td>Orange Terpeneless Extra</td>
</tr>
<tr>
<td>Lime Distilled W.I. Dominican Type FCC</td>
<td>Orange Terpeneless Special</td>
</tr>
<tr>
<td>Lime Distilled W.I. 2-fold</td>
<td>Orange California Type 5-Fold</td>
</tr>
<tr>
<td>Lime Distilled West Indian 4-fold</td>
<td>Orange Florida Cp Midseason FCC</td>
</tr>
<tr>
<td>Lime Distilled Terpeneless</td>
<td>Orange Brazilian 10-fold</td>
</tr>
<tr>
<td>Lime Distilled Terpeneless (From Mexican Oil)</td>
<td>Orange Midseason 10-fold</td>
</tr>
<tr>
<td>Lime Expressed Oil</td>
<td>Orange Cp Valencia FCC</td>
</tr>
<tr>
<td>Lime Expressed Persian FCC</td>
<td>Orange Valencia 5-fold</td>
</tr>
<tr>
<td>Lime Expressed Terpeneless # 2</td>
<td>Orange Essence Oil 6-fold Enhanced</td>
</tr>
<tr>
<td>Lime Expressed Persian 4-fold</td>
<td>Orange Essence Oil Flavor Grade 10-fold</td>
</tr>
<tr>
<td>Lime Expressed Mexican Type FCC</td>
<td>Orange Essence Oil Flavor Grade 20-fold (Top notes)</td>
</tr>
<tr>
<td>Lime Expressed West Indian FCC</td>
<td>Orange Essence Oil 3-fold</td>
</tr>
<tr>
<td>Lime Expressed Terpeneless Extra</td>
<td>Orange Essence Oil Enriched 7-fold</td>
</tr>
<tr>
<td>Lime Expressed W.I. 4-fold</td>
<td>Orange Essence Oil Flavor Grde 30-fold</td>
</tr>
<tr>
<td>Lime Expressed Persian Sesquiterpeneless</td>
<td>Tangerine Terpenes</td>
</tr>
<tr>
<td>Mandarin Oil</td>
<td>Tangerine California Type Cp</td>
</tr>
<tr>
<td>Mandarin Petitgrain Terpenes</td>
<td>Tangerine California Type 5-fold</td>
</tr>
<tr>
<td>Mandarin Petitgrain</td>
<td>Tangerine Daney Type C.p. FCC</td>
</tr>
<tr>
<td>Mandarin Italian Select FCC</td>
<td>Tangerine Daney Type 20-fold</td>
</tr>
<tr>
<td>Mandarin Petitgrain Terpeneless</td>
<td>Tangerine Terpeneless Extra</td>
</tr>
<tr>
<td>Mandarin Italian Type 4-fold</td>
<td>Tangerine Sesquiterpeneless Extra</td>
</tr>
<tr>
<td>Orange Oil</td>
<td>Tangerine Terpenes</td>
</tr>
<tr>
<td>Orange Terpenes Ex-5-Fold</td>
<td>Tangerine California Type Cp</td>
</tr>
</tbody>
</table>

Sesquiterpeneless Oils

Grapefruit Oil Florida

Lemon natural
Lemon Oil Extra
Lime Oil Expressed Persian
Lime Oil Mexican
Lime Distilled Mexican

Orange Essence Oil

Tangerine Oil Extra

Tangerine Oil

Tangerine Terpenes
Tangerine California Type Cp
Tangerine California Type 5-fold
Tangerine Daney Type C.p. FCC
Tangerine Daney Type 20-fold
Tangerine Terpeneless Extra
Tangerine Sesquiterpeneless Extra
Clos D'Aguzon - France

Matieres Premieres Aromatiques

Bergamot Oil Bergapten Free
Bergamot Oil Italian
Bergamot Oil Ivory Coast

Grapefruit Oil

Lemon Oil Italian
Lemon Oil Spanish
Lemon Oil Folded

Mandarin Oil Italian Green
Mandarin Oil Italian Red
Mandarin Oil Italian Yellow

Orange Oil Folded

Natural Isolates

Citral Ex Litsea

D Limonene Dextro Pure

Natural Derivatives

Lemon Terpenes
Cookson & Hunt International Co. - USA

Essential Oils & Aromatic Chemicals

Bergamot Oils - Argentina, Italy

D’Limonene - USA, Brazil, Mexico

Grapefruit Oil - USA, Israel, Brazil, South Africa, Argentina

Lemon Oils - USA, Argentina, Italy, Brazil, Spain, Mexico, South Africa

Lime Oils - USA, Mexico, Brazil, Peru, South Africa

Litsea Cubeba Oil - China

Mandarin Oil - Italy, Argentina, Brazil

Tangerine Oil - USA, Brazil, China, South Africa

Terpenes

Grapefruit

Lime

Lemon

Litsea Cubeba

Mandarin

Orange
Creative Fragrances Ltd. - USA

Essential Oils

Bergamot Oil - Italy
Bergamot Oil Rectified - Italy
Grapefruit Oil Florida - US
Lemon Eucalyptus - China
Lemon Oil CP - US
Lemon Oil 5-fold Calif. - US
Lime Oil Distilled - W.I.
Litsea Cubeba Chinese 85 % - China
Mandarin Oil - Italy
Orange Oil Bitter - Brazil
Orange Oil Sweet - US
Orange Oil 5 Fold - US
Tangerine Oil Calif. - US
DMH Ingredients - USA

Essential Oils & Aromatic Chemicals

Bergamot Bergaptene Free

Grapefruit C.P. Pink, White

Lemon C.P. Argentina, Brazil, CA
Lemon, Var. Folded Strengths
Lemongrass, Chinese
Lime - Haiti, Mexico, Peru Folded
D’Limonene
Litsea Cubeba

Mandarin

Orange Bitter, W.I.
Orange, C.P. Folded Stre.

Tangerine, C.P.

Terpenes

Terpenes, Grapefruit
Terpenes, Lemon
Terpenes, Lime
Terpenes, Orange
## The Citrus Notes of Fragrance

**De Monchy Aromatics, Inc. - United Kingdom**

**Essential Oils & Specialties**

<table>
<thead>
<tr>
<th>Bergamot Italian</th>
<th>Lime Expressed West Indian</th>
<th>Tangerine Dancy 5-Fold</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bergamot Italian FCF</td>
<td>Lime Expressed West Indian 4-Fold</td>
<td></td>
</tr>
<tr>
<td>Grapefruit California ( pink fruit )</td>
<td>Lime Terpenes</td>
<td>Aroma Chemicals</td>
</tr>
<tr>
<td>Grapefruit California ( white fruit )</td>
<td>Litsea Cubeba</td>
<td>Citral</td>
</tr>
<tr>
<td>Grapefruit Florida</td>
<td>Litsea Cubeba Terpenes</td>
<td></td>
</tr>
<tr>
<td>Grapefruit Florida 5-Fold</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Grapefruit Florida 10-Fold</td>
<td>Mandarin Italian</td>
<td>Natural Aroma Chemicals</td>
</tr>
<tr>
<td>Grapefruit Israeli</td>
<td>Mandarin Italian 4 - Fold</td>
<td></td>
</tr>
<tr>
<td>Grapefruit Terpeneless</td>
<td>Mandarin Petitgrain</td>
<td></td>
</tr>
<tr>
<td>Grapefruit Terpenes</td>
<td>Orange Bitter Dominican</td>
<td></td>
</tr>
<tr>
<td>Lemon Argentina</td>
<td>Orange Brazilian</td>
<td></td>
</tr>
<tr>
<td>Lemon Argentina 5-Fold</td>
<td>Orange Brazilian 10-Fold</td>
<td></td>
</tr>
<tr>
<td>Lemon California 2-Fold</td>
<td>Orange California</td>
<td></td>
</tr>
<tr>
<td>Lemon California 5-Fold</td>
<td>Orange California 5-Fold</td>
<td></td>
</tr>
<tr>
<td>Lemon California 10-Fold</td>
<td>Orange Essence Oil</td>
<td></td>
</tr>
<tr>
<td>Lemon Essence</td>
<td>Orange Essence Oil 10-Fold</td>
<td></td>
</tr>
<tr>
<td>Lemon Essence 5-Fold</td>
<td>Orange Essence Oil 20-Fold</td>
<td></td>
</tr>
<tr>
<td>Lemon Juice Carbonyls</td>
<td></td>
<td>( Top Notes )</td>
</tr>
<tr>
<td>Lemon Italian</td>
<td>Orange Florida Midseason</td>
<td></td>
</tr>
<tr>
<td>Lemon Terpeneless</td>
<td>Orange Florida Midseason 5-Fold</td>
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</tr>
<tr>
<td>Lemon Terpenes</td>
<td>Orange Florida Midseason 10-Fold</td>
<td></td>
</tr>
<tr>
<td>Lemon Washed</td>
<td>Orange Decolourized 15-Fold</td>
<td></td>
</tr>
<tr>
<td>Lime Distilled Mexican</td>
<td>Orange Juice Carbonyls</td>
<td></td>
</tr>
<tr>
<td>Lime Distilled Mexican 5-Fold</td>
<td>Orange Terpenes</td>
<td></td>
</tr>
<tr>
<td>Lime Distilled Peruvian</td>
<td>Orange Terpeneless</td>
<td></td>
</tr>
<tr>
<td>Lime Distilled West Indian</td>
<td>Orange Valencia</td>
<td></td>
</tr>
<tr>
<td>Lime Distilled West Indian 2-Fold</td>
<td>Orange Valencia 5-Fold</td>
<td></td>
</tr>
<tr>
<td>Lime Distilled West Indian 5-Fold</td>
<td>Orange West Indian</td>
<td></td>
</tr>
<tr>
<td>Lime Distilled Terpeneless</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Lime Essence</td>
<td>Tangerine</td>
<td></td>
</tr>
<tr>
<td>Lime Expressed Persian</td>
<td>Tangerine Dancy</td>
<td></td>
</tr>
</tbody>
</table>
Destilerias Munoz Galvez, s.a. - Spain

Essential Oils, Aroma Chemicals & Flavours

<table>
<thead>
<tr>
<th>Lemon Expression</th>
<th>Lemon Oil - Distilled</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Lemon Terpenes</td>
</tr>
<tr>
<td>Mandarin Red</td>
<td>Lemongrass Oil Guatemalan</td>
</tr>
<tr>
<td></td>
<td>Lime Oil Cold Pressed -</td>
</tr>
<tr>
<td>Orange Expression Bitter</td>
<td>Cuban, Haitian,</td>
</tr>
<tr>
<td>Orange Expression Sweet</td>
<td>Ivory Coast, Mexican, Peruvian, West Indian</td>
</tr>
</tbody>
</table>

Aromatic Chemicals

| Citral Pure natural       | Lime Oil - Washed                |
| Citronellal Pure natural  | Lime Terpenes                    |
| Di Hydro Myrcenol         | Mandarin Oil - Distilled        |
|                            | Mandarin Oil - Sicilian Red      |
| Limonene Laevo 65         | Mandarin Oil - Sicilian Yellow   |
| Limonene Laevo 70/75      | Mandarin Oil - South African     |
| Dist. for FD Copeland & Sons Ltd. | Mandarin Oil - Spanish       |
|                            | Mandarin Oil - Washed            |
|                            | Mandarin Oil - Folded            |

| Bergamot Oil - FCF        | Orange Essence Oil              |
| Bergamot Oil - Italian    | Orange Oil Bitter - African, Sicilian, South American, Spanish, West Indian |
| Bergamot Oil - Ivory Coast| Orange Oil - Folded             |
| Grapefruit Oil - Florida, Israeli, West Indian | Orange Oil Sweet - Brazilian, Florida, Sicilian, South African, Spanish, West Indian |
| Lemon Oil - Argentine, Florida Israeli, Ivory Coast, Sicilian, South African, Spanish | Orange Oil - Washed |
| Lemon Oil - Folded        | Orange Terpenes                  |
| Lemon Oil Terpeneless     | Tangerine Oil - Florida, South African, South American |
Dulcos Trading - France

Liste de Produits

Bergamote Cote D’Ivoire
Bergamote Italie
Bergamote Distillee Italie

Clementine Italie

Limette Distillee Cote D’Ivoire
Limette Distillee Mexique
Limette Distillee Perou
Limette Distillee W.I.
Limette Exprimee Cote D’Ivoire
Limette Exprimee Mexique
Limette Exprimee W.I.
Litsea Cubeba 75 %

Mandarine Jaune Italie
Mandarine Rouge Italie
Mandarine Verte Bresil
Mandarine Verte Itale

Orange Afrique Du Sud
Orange Amere Bresil
Orange Amere Cote D’Ivoire
Orange Amere Italie
Orange Amere W.I.
Orange Bresil
Orange Floride
Orange Italie

Pamplemousse Floride
Pamplemousse Israel

Tangerine
Dullberg Konzentra GmbH - Germany

Fine Essential Oils

Bergamot Oil
Grapefruit Oil
Lemon Balm Oil
Lime Oil
Litsea Cubeba Oil
Orange Oil Bitter
Orange Oil Sweet

J.Piltz - Brazil - Distributor

Bergamota
Lima
Limao
Lintsea Cubeba

Mandarino
Tangerina

Aromas

Bergamot
Grapefruit
Lemon
Lime
Orange
Eramex Aromatics GmbH - Germany

Essential, Citrus Oils & Aromatic Chemicals

<table>
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<tr>
<th>Bergamot Oils</th>
<th>Lemon Oil, Brazil</th>
<th>Tangerine Oil, Brazil</th>
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<td>Bitter Orange Oils</td>
<td>Lemon Oil, Italian</td>
<td></td>
</tr>
<tr>
<td>Blood Orange Oil</td>
<td>Lemon Oil, Italaian, furocoumarin free</td>
<td>Aroma Chemicals Natural</td>
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<tr>
<td></td>
<td></td>
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<tr>
<td>Grapefruit Oils</td>
<td>Lemon Oil, Spanish</td>
<td>Citral ex Litsea</td>
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<tr>
<td></td>
<td>Lemon Essence Oil</td>
<td>Citrus Terpenes ( D’Limonene )</td>
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<tr>
<td>Lemon Oils</td>
<td>Lemon Oil, distilled</td>
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<tr>
<td>Lime Oils</td>
<td>Lemon Oil, washed</td>
<td>Grapefruit Terpenes</td>
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<tr>
<td></td>
<td>Lime Oil, Distilled, Mexican</td>
<td>Grapefruit Terpenes, washed</td>
</tr>
<tr>
<td>Mandarin Oils</td>
<td>Lime Oil, Distilled, Cuban</td>
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<td></td>
<td>Lime Oil, C.P. Brazil</td>
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<tr>
<td>Tangerine Oils</td>
<td>Lime Oil, C.P. Mexico</td>
<td>Lemon Terpenes</td>
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<tr>
<td></td>
<td>Lime Oil, C.P. Type Tahiti</td>
<td>Lemon Terpenes, washed</td>
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<tr>
<td>Citrus Oils</td>
<td>Lime Essence Oil, Mexico</td>
<td>Lime Terpenes</td>
</tr>
<tr>
<td></td>
<td>Lime Water Phase, Brazil</td>
<td>d’Limonene</td>
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<tr>
<td></td>
<td></td>
<td>Litsea Cubeba Terpenes</td>
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<tr>
<td>Bergamot Oil, Brazilian</td>
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<tr>
<td>Bergamot Oil, Italian, furocoumarin-free</td>
<td>Mandarion Oil, Yellow, Brazil</td>
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<tr>
<td>Bergamot Oil, Reggio</td>
<td>Mandarion Oil, Yellow, Italy</td>
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<tr>
<td>Bergamot Oil, Ivory Coast</td>
<td>Mandarion Oil, Green, Brazil</td>
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<tr>
<td>Bitter Orange Oil, Brazilian</td>
<td>Mandarion Oil, Green, Italy</td>
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<td>Bitter Orange Oil, Ivory Coast</td>
<td>Mandarion Oil, Red, Argentina</td>
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<td>Blood Orange Oil</td>
<td>Mandarion Oil, Red, Brazil</td>
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<td>Mandarion Oil, Red, Italy</td>
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<td>Mandarion Oil, Red, Uruguay</td>
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<tr>
<td>Grapefruit Oil, Pink, California</td>
<td>Orange Oil, Pera, Brazil</td>
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<tr>
<td>Grapefruit Oil, Red</td>
<td>Orange Oil, Pera Brazil, high aldehyde</td>
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<tr>
<td>Grapefruit Oil, White, Argentina</td>
<td>Orange Oil, Valencie, Florida</td>
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<tr>
<td>Grapefruit Oil, White, Brazil</td>
<td>Orange Essence Oil, Brazil</td>
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<tr>
<td>Grapefruit Oil, White, California</td>
<td>Orange Water Phase, Brazil</td>
<td></td>
</tr>
<tr>
<td>Lemon Oil, Argentina</td>
<td>Tangerine Oil, Argentina</td>
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<tr>
<td></td>
<td></td>
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</tr>
</tbody>
</table>

Fragrance Books Inc. @www.perfumerbook.com
gamma - Terpinene

dihydro-Nootkatone
Nootkatone (50-87%)
Nootkatone Crystals 97%
Esencias y Materiales Lozmar, S.A. de C.Y. - Mexico

Esencias

Aceites Esenciales

Mandarina

Quimicos De Aromaticos

Citral
Citral Dimetil Acetal
Citronelal
Essencia, Aetherische Oele Ag. - Switzerland

Liste des Produits

Bergamote Reggio
   Citrus Bergamia

Clementine
   Citrus Reticulata Blanco

Limette Pressee a Froid
   Citrus Aurantifolia

Litsea Cubeba
   Litsea Cubeba

Orange Amere Guinee
   Citrus Amara

Orange Amere Messine
   Citrus Amara

Orange Deterpenee
   Citrus Dulcis

Orange Douce Floride
   Citrus Dulcis

Orange Douce Messine
   Citrus Dulcis

Orange Florida Conc.
   Citrus Dulcis

Orange 40 X
   Citrus Dulcis

Orange Sanguim Messina
   Citrus Dulcis

Pamplemousse USA
   Citrus Grandis

Terpenes

Terpene De Limette Purifiee
   Citrus Aurantifolia

Terpene De Mandarine
   Citrus Reticulata

Matieres Premieres Aromatiques

Citronellyl Nitrile
   Citrylal

Di Hydro Myrcenole

Limonene, D -
   Limonene, L -

Methyl Pamplemousse
Euma - Argentina

Essentials Oils & Natural Products

Bergamote Oil

Lemon Oil
Lemon Terpenes
Lime Oil
Litsea Cubeba Oil
Litsea Cubeba Terpenes

Orange 10 X Reinforced
Orange 2 X Oil
Orange 5 X Oil
Orange Bitter Oil
Orange Sweet Oil
Orange Terpenes

Tangerine Green Oil
Tangerine Oil

Aceites Esenciales & Productos Naturales

Bergamote Ac. Es

Limon 1229
Limon 1230

Mandarina 1273 - M
FD Copland & Sons Ltd. - UK

Essential Oils

Bergamot Oil - FCF
Bergamot Oil - Italian
Bergamot Oil - Ivory Coast

Grapefruit Oil - Florida, Israeli, West Indian

Lemon Oil - Argentine, Florida
     Israeli, Ivory Coast,
     Sicilian, South African,
     Spain
Lemon Oil - Folded
Lemon Oil Terpenes
Lemongrass Oil Guatemalan
Lime Oil Cold Pressed -
     Cuban, Haitian,
     Ivory Coast, Mexican,
     Peruvian, West Indian
Lime Oil - Washed
Lime Terpenes
Litsea Cubeba Oil

Mandarin Oil - Distilled
Mandarin Oil - Sicilian Red
Mandarin Oil - Sicilian Yellow
Mandarin Oil - South African
Mandarin Oil - Spanish
Mandarin Oil - Washed
Mandarin Oil - Folded

Orange Essence Oil
Orange Oil Bitter - African,
     Sicilian, South American,
     Spanish, West Indian
Orange Oil - Folded
Orange Oil Sweet - Brazilian,
     Florida, Sicilian, South
     African, Spanish
Orange Oil - Washed
Orange Terpenes
Tangerine Oil - Florida,
     South African, South
     American
The Citrus Notes of Fragrance

Fine Chemical Trading Ltd. - U.K.

Products

Bergamot

Grapefruit

Lemon
Lemon Scented Eucalyptus
Lemon Verbena Oil
Lemongrass
Lime Distilled
Litsea Cubeba

Mandarin

Orange Bitter
Orange Sweet
Firmenich SA - Switzerland

Product Catalogue

Aldehyde Mandarine 10 % Citr
Aldehyde MNA
Aldehyde MOA

Bergamote 136

Citroasis Base 129022 L
Citron 171

Mandarinal 23048 SAE

Tamarine Base 41310 G
Thioxan Base 38375 B

Vert De Citron 66265
The Citrus Notes of Fragrance

Spectra of Essential Oils

Bergamot Bergaptene Free Italy
Bergamot Mint India, Oregon
Bergamot Natural Italy
Bergamot Rectified 38/40 % Italy

Clementine India

Grapefruit Pink Cp California
Grapefruit White Cp FCC Florida

Lemon Cp FCC California
Lemon Cp Spain
Lemon Italy
Lemon Verbena Rectified
  w/Synthetic France
Lime Cp FCC Mexico
Lime Sd FCC Mexico
Litsea - May Chang China

Mandarin Red Italy

Orange Bitter Dominican
Orange Blood Sicily
Orange Sweet Cp FCC Brazil,
  Florida

Tangerine Cravo Type Brazil,
  Mexico
Tangerine Dancy Type China
Tangerine Dancy Type FCC
  Florida
Flavodor - The Netherlands

Catalogues

Bergamot Oil ( Misc. Origins )
Grapefruit Oil
Lemon ( Essence ) Oil
Lemon Oil Folded
Lemongras Oil
Lime Oil, C/P & Folded
Lime Oil, distilled
Mandarin Oil, Green
Mandarin Oil, Folded
Mandarin Oil, Terpeneless
Orange Oils, Bitter
Orange Oils, Sweet
Orange Oils, Dark
Orange Oils, Carotinoid
Orange Oils, Folded
Orange Oils, Terpeneless
Orange Essence Oil
Tangerine Oil

Terpenes

Grapefruit Terpenes, Distilled
Lemon Terpenes, Distilled
Lemon Terpenes, Washed
Lemongrass Terpenes
Lime Terpenes, Distilled
Lime Terpenes, Washed
## Essential Oils & Aromatic Chemicals

<table>
<thead>
<tr>
<th>Essential Oil</th>
<th>Aromatic Chemical</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bergamot, Italian</td>
<td>Orange, Bitter Desensitized</td>
</tr>
<tr>
<td>Bergamot, Ivory Coast</td>
<td>Orange, Brazilian C.P.</td>
</tr>
<tr>
<td>Bergamot, desensitized</td>
<td>Orange, Brazilian Distilled</td>
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<tr>
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<td>Orange, California C.P.</td>
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<tr>
<td>Grapefruit, California C.P.</td>
<td>Orange, California Distilled</td>
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<tr>
<td>Grapefruit, Florida C.P.</td>
<td>Orange, Florida C.P. Mid-season</td>
</tr>
<tr>
<td>Grapefruit, Israel C.P.</td>
<td>Orange, Florida C.P. Valenica</td>
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<td></td>
<td>Orange, Florida Distilled</td>
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<tr>
<td>Lemon, Argentina C.P.</td>
<td>Orange, Folded</td>
</tr>
<tr>
<td>Lemon, Arizona C.P.</td>
<td>Orange, Guinea C.P.</td>
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<tr>
<td>Lemon, Brazilian C.P.</td>
<td>Orange, Terpeneless</td>
</tr>
<tr>
<td>Lemon, California C.P.</td>
<td>Tangerine, Brazil</td>
</tr>
<tr>
<td>Lemon, Florida C.P.</td>
<td>Tangerine, Florida</td>
</tr>
<tr>
<td>Lemon, Italian C.P.</td>
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<tr>
<td>Lemon, Ivory Coast C.P.</td>
<td></td>
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<tr>
<td>Lemon, Desensitized</td>
<td>Aromatic Chemicals</td>
</tr>
<tr>
<td>Lemon, Distilled</td>
<td>Citral</td>
</tr>
<tr>
<td>Lemon, Folded</td>
<td>Citronellal</td>
</tr>
<tr>
<td>Lemon, Terpeneless</td>
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</tr>
<tr>
<td>Lemon, Washed</td>
<td></td>
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<tr>
<td>Lime, Haitian Distilled</td>
<td>Dihydromyrcenol</td>
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<tr>
<td>Lime, Mexican Distilled</td>
<td>Dipentene</td>
</tr>
<tr>
<td>Lime, Peruvian Distilled</td>
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<tr>
<td>Lime, Brazilian Expressed</td>
<td>Menthyl Acetate</td>
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<tr>
<td>Lime, Mexican Expressed</td>
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<tr>
<td>Lime, Persian Expressed</td>
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<tr>
<td>Litsea Cubeba</td>
<td></td>
</tr>
<tr>
<td>Mandarin, Brazilian C.P.</td>
<td></td>
</tr>
<tr>
<td>Mandarin, Italian C.P.</td>
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<tr>
<td>Orange, Bigarde Ivory Coast</td>
<td></td>
</tr>
<tr>
<td>Orange, Bitter C.P.</td>
<td></td>
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</tbody>
</table>
Fleurin, Inc. - USA

Product Listing

Bergamot Oil - Italy
Bergamot Oil Bergaptene Free

Mandarin Oil - Italy
Florachem Corporation - USA

Product Listing

Florachem

Citrus (Lemon Lime) Terpenes

Dipentene

Grapefruit Oil

Grapefruit Terpenes

Orange d-limonene

Orange Oil

Orange Terpenes

Frutech

Grapefruit Terpenes

Orange Terpenes

Folded Orange Oil 2x

Folded Orange Oil 5x

Folded Orange Oil 10x

Harting Aromas

Myrcene

Simone Gatto - San Pier Niceto, Italy

Bergamot Oil, Bergaptene Free

"Light"

Bergamot Oil, Bergaptene Free

Bergamot Oil Distilled Colorless

Bergaptene Free

Folded Oils

Grapefruit Red Oil, Distilled, Colorless

Lemon Oil, Sfumatrice

Lemon Oil, Pelatrice

Lemon Oil, Distilled, Terpeneless

Lemon Oil, Sfumatrice, Distilled, Colorless

Mandarin Oil, Distilled, Colorless

Mandarin Oil Red

Mandarin Oil Yellow

Orange Oil, Sweet, Distilled Colorless

Terpenes

Washed Oils

Aroma Chemicals

Citral Natural

Dihydromyrcenol

Dihydromyrcenyl Acetate

Dihydromyrcenyl Formate
Florida Chemical Co. - USA

Product List

d-Limonene

<table>
<thead>
<tr>
<th>Description</th>
<th>Citrus Burst &amp; Citrus Soy</th>
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<tbody>
<tr>
<td>Food Grade d-Limonene</td>
<td>Citrus Burst 1</td>
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<tr>
<td>Lemon Lime Grade d-Limonene</td>
<td>Citrus Burst 2</td>
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<tr>
<td>Technical Grade d-limonene</td>
<td>Citrus Burst 3</td>
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<tr>
<td>High Purity Food Grade</td>
<td>Citrus Burst 4</td>
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<tr>
<td>d-Limonene (low odor)</td>
<td>Citrus Burst 7</td>
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<tr>
<td>Ultra High Purity Food Grade</td>
<td>Citrus Burst 8</td>
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<td>d-Limonene (low odor)</td>
<td>Citrus Burst Soy High Flash</td>
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</table>

Grapefruit Terpenes

<table>
<thead>
<tr>
<th>Description</th>
<th>Fresh Notes Flavor &amp; Fragrance Fractions</th>
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<tbody>
<tr>
<td>Lemon Terpenes</td>
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<tr>
<td>Lime Terpenes</td>
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</tr>
<tr>
<td>Tangerine Terpenes</td>
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Essential Citrus Oils

<table>
<thead>
<tr>
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<tbody>
<tr>
<td>Grapefruit Oil</td>
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</tr>
<tr>
<td>Lemon Oil</td>
<td>Orange Oil 5 Fold</td>
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<tr>
<td>Lime Oil</td>
<td>Orange Oil 10 Fold</td>
</tr>
<tr>
<td>Midseason Orange Oil</td>
<td></td>
</tr>
<tr>
<td>Orange Essence Oil</td>
<td></td>
</tr>
<tr>
<td>Tangerine Oil</td>
<td>Valencene</td>
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<tr>
<td>Valencia Orange Oil</td>
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</tr>
</tbody>
</table>
Florida Worldwide Citrus - USA

Standard Product Categories

Citrus Oils

d-Limonene
Orange Terpenes
Florida Cold Pressed Grapefruit Oil: Early, Midseason, Valencia
Florida Cold Pressed Grapefruit Oil: White, Pink
Florida Orange Essence Oil
Cold Pressed Lemon Oil
Cold Pressed Lime Oil
Cold Pressed Tangerine Oil

Florida Grapefruit Essence Oil
3-Fold Florida Orange Essence Oil
Enriched
5-Fold Florida Orange Essence Oil
20-Fold Florida Orange Essence Oil
Lemon Essence Oil
3-Fold Lemon Essence Oil
Lime Essence Oil

Folded Cold Pressed Oils

5-Fold Cold Pressed Mid-Season Orange Oil
5-Fold Cold Pressed Valencia Orange Oil
5-Fold Cold Pressed Lemon Oil
7-Fold Cold-Pressed Mid-Season Orange Oil
7-Fold Cold-Pressed Valencia Orange Oil
10-Fold Cold-Pressed Valencia Orange Oil
10-Fold Cold-Pressed Mid-Season Orange Oil

Essence Oils

Florida Orange Essence Oil
Frencharoma Imports Co., Inc. - USA

Essential Oils & Aromatic Chemicals

Bergamot (Italian)

Grapefruit

Lemon (Argentinian)
Lemon (California)
Lemon (Italian)
Lime (Peruvian)
Lime C.P. (Mexican)
Litsea Cubeba (Chinese)

Mandarin (Italian)
Mandarin (S. American)

Orange

Tangerine Oil

Aromatic Chemicals

Citral
Citronellal

Dihydromyrcenol

Menthy1 Acetate
Frey & Lau GmbH - Germany

Essential Oils & Aromatic Chemicals

Bergamot Oil

Lemon Oil
Lime Oil West - Indian
Litsea Cubeba Oil

Mandarin Oil (red)
Orange Oil (bitter)
Orange Oil (sweet)

Tangerine Oil

Aromatic Chemicals

Citral

D-Limonene
Fritzsche SAICA - Argentina

Products

Lemon Oil
Lime Oil
Litsea Cubeba Oil

Citrus Oils Cold Pressed
Bergamot Oil
Grapefruit Oil
Lemon Oil
Lime Oil
Lime Oil Persian

Mandarin Oil

Orange Bitter Oil
Orange Sweet Oil

Tangerine Oil

Citric Essential Oils
Concentrated - Terpeneless
Terpenes

Lemon
Lime
Orange
Fuitarom Industries - Israel

Essential Oils, Citrus & Specialties

Bergamot Oil
Bergamot Oil Calabrian
Bergaptene Free
Bergamot Oil Calabrian Finest
Bergamot Oil Terpeneless

Grapefruit Oil Israeli
Grapefruit Oil Sweetie
Grapefruit Oil White

Lemon Oil
Lemon Oil Booster
Lemon Oil California
Lemon Oil Rectified
Lemon Oil Sicilian
Lemon Oil Terpeneless
Lemon Oil Terpeneless (BP)
Lemon Terpenes
Lemongrass Oil Cochin
Lemongrass Oil Guatemalan
Lime Oil Peruvian Distilled
Lime Oil Terpeneless
Lime Oil West Indies
Lime Terpenes
Linalol Ex Bois De Rose
Litsea Cubeba / May Chang Oil

Mandarin Oil
Mandarin Oil Sicilian Red
Orange Aldehyde
Orange Oil 10 Fold
Orange Oil 5 Fold

Citrus Specialties

Orange Oil Booster
Orange Oil Florida
Orange Oil Juicy
Orange Oil Terpeneless

Tangerine Oil Brazil
Sweetie

Grapefruit Oil
Grapefruit Oil 5 Fold Enriched
Grapefruit Oil 20 Fold
Grapefruit Oil Distilled
Grapefruit Oil Terpeneless
Grapefruit Oil Terpeneless GSP
Grapefruit Top Note

Lauric Aldehyde Ex Orange 45 %
Lemon Oil
Lemon Oil 5 Fold
Lemon Oil Terpeneless SPD
Lime Oil Terpeneless
Linalool Ex Orange 80 %
l-Linalool Natural

Mandarine Oil
Mandarine Oil 5 Fold

Naringin Natural
Nootkatone Ex Citrus Natural 50 %
Nootkatone Ex Citrus Natural 70 %
Nootkatone Ex Grapefruit Natural
Nootkatone Ex Grapefruit Natural 80 %
Nootkatone Ex Valencene 60 %
Nootkatone Ex Valencene 80 %
Nootkatone Ex Valencene 87 %
Nootkatone Ex Valencene 95 %
Nootkatone Ex Valencene 98 %

Orange CP Carbonyls
Orange Essence Oil Enriched
Orange Essence Oil Topnote 80
Orange Oil
Orange Oil 2.5 Fold
Orange Oil 5 Fold Enriched
Orange Oil 10 Fold
Orange Oil 20 Fold
Orange Oil 20 Fold Enriched
Orange Oil Shamuti 5 Fold
Orange Oil Distilled
Orange Oil Terpeneless SPD

Pink Grapefruit Aldehyde
Pink Grapefruit Oil 5 Fold
Pink Grapefruit Oil 10 Fold

---

The Citrus Notes of Fragrance
Shamutti Orange Oil
Sinensal Ex Orange Natural
Sweetie Oil
Sweetie Oil 2 Fold
Sweetie Oil 5 Fold

Valencene 80% HP
Valencene Natural
Furest Day Lawson - U.K.

Essential Oils & Aroma Chemicals

Lemongrass Terpenes
Lemon Oil
Lemon Oil Sicilian
Lime Oil Distilled
Litsea Cubeba Oil ( China ) 75 %

Mandarin Oil Sicilian

Orange Oil Sicilian
Orange Blood Oil Sicilian

Aroma Chemicals

Citral natural

D + Limonene
Givaudan Fragrance Corporation - Switzerland

Specialty Bases & Aroma Chemicals Compendium

Bergamot Givco 104
Citrilys Givco 169
Grapefruit S Givco 230
Lemon Givco 112
Lemon Givco 112/2
Orangia Givco 213
Tangeris Givco 212

Aroma Chemicals Compendium

Alcohol C - 11 Undecylenic
Aldehyde C - 110 Undecylic
Decanal - 4 - Trans
Lemonile
Lime Oxide
Limetol
Linalyl Formate
Methyl Heptenone Pure
Methyl Pamplemousse

Tangerinol
Tetrahydro Linalool
Tetrahydro Linalyl Acetate

Quest International Perfumer's Compendium

Argudor AB 600
Brgamot Oil Reconstructed
Citral X Litsea
Citrathal
Lemon Oil Synthetic
Lime AB 402
Orange Oil Nardenised
Sino Citral
Sinocitril ABQ4020
Trideen 2 Nirile
Yuzuzest ABJ7091
Global Essence Ltd. - U.K.

Products

Citrus Oils

Bergamot Oil
Grapefruit Oil
Lemon Oil
Lemon Terpenes
Lime Oil
Lime Washed
Lime Terpenes

Mandarin Oil

Orange Oil
Orange Terpenesless
Orange Oil 5 Fold
Orange Oil 10 Fold

Tangerine Oil

Organic Essential Oils

Bergamot Oil
Bergamot Oil B/F

Grapefruit Oil

Lemon Oil Italy
Lime Oil Mexican Expressed
Lime Oil Persian Expressed

Mandarin Oil

Aromatic Chemicals

Citral Natural
Citral Synthetic
D’Limonene
Di Hydro Myrcenol
Dipentene
The Good Scents Company - USA

Perfumery Raw Materials Information

<table>
<thead>
<tr>
<th>Bergamot Mint Oil</th>
<th>Aromatic Chemicals</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bergamot Oil</td>
<td>Citral</td>
</tr>
<tr>
<td>Bergamot Oil Bergaptene Free Italy</td>
<td>Citral Di Ethyl Acetal</td>
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<tr>
<td>Bergamot Oil Terpeneless</td>
<td>Citral Di Methyl Acetal</td>
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<tr>
<td>Grapefruit Oil California</td>
<td>Citronellal</td>
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<tr>
<td>Grapefruit Oil Terpeneless</td>
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<td>Marine Decadienal</td>
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<td>Methyl Heptenone</td>
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</table>
Corlin & Company - USA

Essential Oils

- Bergamot
- Bergamot Bergaptene Free
- Grapefruit, C.P. Pink
- Grapefruit, C.P. White
- Lemon, C.P. Argentina
- Lemon, C.P. Brazil
- Lemon, C.P. California
- Lemon, C.P. Italy
- Lemon Terpenes
- Lemon, Washed
- Lemongrass - China
- Lemongrass - Guatemala
- Lemongrass - India
- Lime, Distilled Haiti
- Lime, Distilled Mexico
- Lime, Distilled Peru
- Lime, C.P. Mexico
- Lime, C.P. Peru
- Lime Terpenes
- Litsea Cubeba
- Mandarin
- Orange, Bitter, W.I.
- Orange, C.P. Brazil
- Orange, C.P. California
- Orange, C.P. Florida
- Orange Terpenes
- Tangerine, C.P. Brazil
- Tangerine, C.P. Dancy Type

Folded Oils

- Grapefruit
- Lemon
- Lime
- Orange
- Tangerine

Citrus Terpenes

- Grapefruit
- Lemon
- Lime
- Orange
- Tangerine
### Aroma Chemicals & Essential Oils

<table>
<thead>
<tr>
<th>Product</th>
<th>Notes</th>
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<td>Bergamot Oil</td>
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<tr>
<td>Grapefruit Oil 10-Fold</td>
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<td>Grapefruit Oil 5-Fold</td>
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<tr>
<td>Lemon Oil 10 - Fold</td>
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<tr>
<td></td>
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<td></td>
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<td>Litsea Cubeba Berry Oil</td>
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<td>Orange Oil 5-Fold</td>
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<tr>
<td>Orange Oil 10-Fold</td>
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<td>Orange Oil 20-Fold</td>
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<td>Orange Oil Bitter 5-Fold</td>
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<td>Orange Oil Cold Pressed</td>
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<tr>
<td>Orange Oil Terpeneless</td>
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</tbody>
</table>

### The Citrus Notes of Fragrance

Tangerine Oil 5-Fold
Tangerine Oil Terpenes
Citral natural
Citral synthetic
D-Limonene
Valencene natural
HC Biochem - China

Essential Oils & Concretes

Bergamot Mint Oil
Bergamot Oil

Grape Fruit Oil

Lemon Oil
Lime Oil
Lime Oil 5X
Lime Oil 10X
Litsea Cubeba Oil

Mandarin (Cold Pressed)

Orange Oil (Distilled)
Orange Pell Oil

Tangeine Oil (Cold Pressed)
H. Reynaud & Fils - France

Essential Oils

Bergamote Cote D’Ivoire
   Bergamot Oil
Bergamote Sans Bergaptene
   Bergaptene Free

Limette
   Lime Oil
Litsea Cubeba Chine
   Litsea Cubeba Oil

Mandarine
   Mandarin Oil

Orange Amere Bresil
   Bitter Orange Oil
Orange Douce Bresil
   Sweet Orange Oil

Pamplemousse Israel
   Grapefruit Oil

Water Soluble Oils

Orange Douce Bresil
   Sweet Orange Oil

Pamplemousse Israel
   Grapefruit Oil
Handa Fine Chemicals Ltd., - U.K.

Fine Essential Oils

Bergamot Oil

Lemon Oil
Lime Oil
Litsea Cubeba Oil

Orange Oil

Tangerine Oil

Concentrated Botanical Herbal Extracts

Bergamot

Grapefruit

Lime

Orange

Tangerine

Aromatic Chemicals

Citral 96 %
Citra Pure natural
The Citrus Notes of Fragrance

Hemani Ex-Imp Corporation - India

Natural Essential Oils & Aromatic Chemicals

Bergamot Oil

Grapefruit Oil

Mandarin Oil Indian

Orange Oil 5 Fold
Orange Oil 10 Fold
Orange Oil 20 Fold

Aromatic Perfumery Chemicals

Di Hydro Myrcenol
IPRA Fragrances - France

Products

Book # 2 (I - Z)

Bergamote Cote d'Ivoire
Bergamote Italie

Limette Distillee
Litsea Cubeba Chine

Mandarine Italie

Orange Bresil

Produits Organiques ed de Synthese

Citral LC
The Citrus Notes of Fragrance

Innospec Inc. - USA

Aroma List

Citral PQ Extra
Citralis Nitrile
Bigarade Oxide
Octanal ( Aldehyde C - 8 )
Interchim - France

Fragrances & Flavors

Citral
Citral Diethyl Acetal
Citral Natrual
Citronellal Natural
Corps Pamplemousse
  ( corps citrus )

Trans-2, Trans-4-Decadienal
2-Decanone
Trans-2-Decenal
Trans-2-Dodecen-1-AL

2-Heptanol

Iso Amyl 2-Methyl Butyrate

Linalyl Anthranilate

Methyl Methyl Anthranilate

Trans-2, Trans-6-Nonadien-1-AL

Octyl Butyrate

Trans-2-Tridecen-1-AL

2-Undecanone
International Flavors & Fragrances

Fragrance Ingredients

Abbarome 011
Alpha Terpineol
Bergamal
Citral Dimethyl Acetal
Citralva
Citronalva
Clonal
Dihydro Myrcenyl Acetal
Dhydro Terpineol
Dimyrcetol
Dipentene 5100
Floralate
Hypo - Lem
Isoproxen
Lemsyn
Lymolene

Myrac Aldehyde
Myrcenol Super
Myrcenyl Acetate

Neoproxen
Nerol 800
Nerol 900
Neryl Acetate JAX

Ocimene
Ocimemyl Acetate
Octacetal
Orange Flower Ether
Peomosa
Pseudo Linalyl Acetate
Terpinolene 20
Terpinolene 90
Terpinolene 90 PQ
Tetrahydro Muguol
Tetrahydro Muguol Coeur
Tetrahydro Myrcenol
Triplal
Triplal Extra
Vandor B
Vernol
Vigoflor Citrus
JC Buck Ltd. - U.K.

Products

**Citrus Oils**

- Bergamot Calabrian Gr. 1
- Bergamot Calabrian Gr. 2
- Bergamot FCF Green Gr. 1
- Bergamot FCF Green Gr. 2
- Bergamot FCF Water White Gr. 1
- Bergamot FCF Water White Gr. 2
- Bergamot FCF Recon/Special
- Grapefruit Argentine White
- Grapefruit Cyprus White
- Grapefruit Israeli Red
- Grapefruit Israeli White
- Lemon Argentine
- Lemon Brazil Sfumatrice - Aripe
- Lemon Ivory Coast
- Lemon Sicilian Distilled
- Lemon Sicilian Pelatricce
- Lemon Spanish
- Limes Mexican Distilled
- Limes Mexican Cold Pressed
- Limes Peru Distilled
- Mandarin Argentine Green
- Mandarin Argentine Red Finest
- Mandarin Argentine Red Standard
- Mandarin Sicilian Red
- Mandarin Sicilian Yellow
- Mandarin South African
- Orange Bitter Brazil
- Orange Bitter Ivory Coast
- Orange Bitter Spanish
- Orange Sweet Argentine Val
- Orange Sweet Brazil Pera 1.2 %
- Orange Sweet Brazil Taquari
- Orange Sweet Israeli
The Citrus Notes of Fragrance

J & E Sozio, Inc. - USA

Essential Oils

Bergamot Oil Ns

Grapefruit Oil Colorless

Lemon Oil California
Lime Oil W.I. Distilled

Mandarin Oil Italian

Orange Oil Florida Valencia

Tangerine Oil Florida
Essential Oils & Aromatic Chemicals

Bergamota

Lima
Limao
Litsea Cubeba

Mandarino

Tangerina
The Citrus Notes of Fragrance

Joint American Ventures in China - USA

Aromatic Chemicals

Citral
Citronellyl Nitrile
KAO Corporation - Japan

Aroma Chemicals

Aldehyde C - 8
Aldehyde C - 10
Aldehyde C - 11 Undecyl

Elemi Resinoid DPG
Katyani Exports - India

Fine Spices & Herbs

Natural Essential Oils
Botanical Name

Bergamot Oil
   Bergamia Risso et Pioteau

Grape Fruit Oil
   Citrus Reticulata

Lemon Oil
   Limonum Linne
Lime Oil
   Swingle Aurantifolia
Litsea Cubeba Oil
   Litsea Cubeba

Mandarin Oil
   Citrus Reticulata Marjoram Oil

Tangerine Oil
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<tr>
<td>Bergamot Oil Calabrian Finest</td>
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<tr>
<td>Grapefruit Oil - Israel</td>
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<tr>
<td>Grapefruit Oil - Sweetie</td>
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<tr>
<td>Grapefruit Oil White</td>
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<td>Lemon Oil</td>
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<td>Lemon Oil Booster</td>
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<td>Lemon Oil California</td>
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<td>Lemon Oil rectified</td>
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<td>Lemongrass Oil - Guatemala</td>
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<td>Lime Oil - Peru Distilled</td>
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<td>Lime Oil - West Indies</td>
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<td>Lime Terpenes</td>
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<td>Orange Oil 5 Fold</td>
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<td>Orange Oil 10 Fold</td>
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<td>Orange Oil Booster</td>
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<td>Orange Oil - Florida</td>
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</table>
Essential Oils

Bergamot C.P.  Orange Sweet C.P.
Grapefruit Pink C.P.  Orange Essence
Grapefruit White C.P.
Grapefruit Essence Oil  Tangerine C.P.
Lemon C.P. & Distilled
Lemon Essence Oil
Litsea Cubeba

Mandarin C.P. & Distilled
Mandarin Essence Oil

Orange C.P. & Sweet
Orange Essence Oil

Tangerine

Concentrated Essential Oils

Bergamot Terpeneless

Grapefruit C.P.

Lemon C.P.
Lemon Distilled
Lemon Essence
Lime C.P.
Lime Distilled
Lime Essence

Mandarin Green C.P.
Mandarin Red C.P.
**Lluche Essence - Spain**

**Essential Oils & Aromatic Chemicals**

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<tr>
<th>Exclusive Distributing Agent for the Following Companies:</th>
<th>Mentha &amp; Allied Products Ltd.</th>
<th>Lemon Washed Top Grade Oil</th>
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<td>Amgat Citrus Productos S.A. (AMC Grupo)</td>
<td>Millennium Specialty Chemicals</td>
<td>Lemongrass Guatemala Oil</td>
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<tr>
<td>Aromor (Aromor F &amp; F)</td>
<td>Plant Lipids Limited</td>
<td>Lemongrass India Oil</td>
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<tr>
<td>Axxence Aromatic (Axxence Aromatic Gmbh)</td>
<td>Privi Organics Pvt. Ltd.</td>
<td>Lemongrass Terpenes</td>
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<td>Barosyl S.A.</td>
<td>Quest International</td>
<td>Lime Distilled Oil</td>
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<tr>
<td>Camphor &amp; Allied Products Ltd.</td>
<td>Tecnaal, S.A.</td>
<td>Lime Expressed Mexico Oil Type B</td>
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<tr>
<td>Chugay Boyeki Co. Ltd. (Shin Etsu)</td>
<td>Toyotama Internacional Inc.</td>
<td>Lime Expressed Tahiti Oil</td>
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<td>C.V. Aroma &amp; Co.</td>
<td>Vioryl S.A.</td>
<td>Lime Terpenes</td>
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<td>Destilaciones Bordas Chinchurreta, SA (DBCH)</td>
<td>Essential Oils</td>
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<td>Fruitarom Ltd.</td>
<td>Bergamote Berg/F. Italy Oil</td>
<td>Litsea Cubeba Oil</td>
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<td>Grau Aromatics GMBH &amp; Co.KG</td>
<td>Bergamote Italy</td>
<td>Litsea Cubeba Terpenes</td>
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<td>H. Reynaud Et Fils</td>
<td>Bitter Orange Ivory Coast Oil</td>
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<td>Kato Aromatic S.A.E.</td>
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<td>Lemon Washed Oil</td>
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</table>

**Synthetic Aroma Chemicals**

- Citral 95/96 % Synthetic
- Citral Di Methyl Acetal
- Citralthal
- Di Hydro Myrcenol
- Di Hydro Myrcenyl Formate
- Di Hydro Nootkatone
- Di Myrcetol
- Dipentene
The Citrus Notes of Fragrance

Iso Cyclo Citral

Methyl Anthranilate
Myrcenyl Acetate

Neo Bergamate
Lothar Streek - Germany

Ingredients by Givaudan

Iso Cyclo Citral

Lemarome N
Lemonile
Lilial
Lime Oxide
Limetol

Tangerinol
Tetrahydro Citral
The Citrus Notes of Fragrance

M.X.D. Enterprise System - Korea

Perfume List

Bergamot Oil Italy Extra
Bergamot Oil Terpeneless Extra
Bergamot Oil Terpeneless rect. Ex

Grapefruit Oil Extra

Lemon Italy Oil Extra
Lemon Oil Concentrated

Mandarin Oil Concentrated
Mandarin Reed Oil Extra

Orange Sweet Oil Extra
Millennium Chemicals - USA

Fragrance Bases & Aromatic Chemicals

Lemon Base
Lemon Oil 340
Lemon Oil 344 - 5X
Lemon Oil 360
Lime Base 410
Lime Oil 410
Lime Oil # 96

Aromatic Chemicals

Citral 95
Citrus D-Limonene

Di Hydro Myrcene

Gamma Terpinene P & F

L-Limonene P & F

Myrcene Extra
Myrcene Supra FCC

Tetrahydromyrcenol
The Citrus Notes of Fragrance

Moelhausen S.p.A. - Italy

Fine Essential Oils

Bergamot Oil
Bergamot Oil Sicily
Citrosolv
Citrosolv - RL
Citrosolv - SP
Grapefruit Cells Concentrated
Grapefruit Oil 10 Fold
Grapefruit Oil Pink
Grapefruit Oil White
Lemon California
Lemon Terpenes
Lemon Terpenes Washed
Lemon Winter
Lemon Oil 5 Fold
Lemon Oil 10 Fold
Lemon Oil I.C.
Lemon Oil I.C.
Lemon Oil Phase
Lemon Oil Sesquiterpene Free
Lemon Oil South America
Lemon Oil Verdello
Lemon Oil Winter ME
Lime Oil
Lime Oil C.P.
Lime Oil Distilled
Litsea Cubeba Oil
Litsea Cubeba Terpenes
Mandarin Oil Israel
Mandarin Oil Red
Mandarin Oil Uruguay
Mandarin Oil Yellow
Mandarin Terpenes Washed
Tangerine Oil
Moraflor Produits Aromatiques - France

Specialties & Essential Oils

Bergamote - Italy

Lemon - Argentine
Lemon - Cote Ivoire
Lemon - Italy
Limete Distilled - Peru

Orange Bitter - Cote Ivoire
Orange Sweet - Italy
Orange - Argentine
Muller & Koster - France

Essential Oils

Bergamotto
   Citrus Bergamia
Bergamotto Lavato
   Citrus Bergamia

Limetta
   Citrus Aurantifolia

Limone
   Citrus Limonum
Limone Extra
   Citrus Limonum

Litsea Cubeba
   Litsea Cubeba

Mandarino Sicilia
   Citrus Nobilis
Naradev - Hong Kong

Essential Oils

Bergamot African
Bergamot Reggio

Lemon Argentina
Lemon Italian
Lemon Ivory Coast
Lemon South Africa
Lime Distilled
Lime Expressed
Litsea Cubeba

Mandarin Green
Mandarin Red Argentina
Mandarin Red Italian

Orange Bigarade California
Orange Bigarade Ivory Coast
Orange Brazil
Nardev - Israel

Essential Oils

Bergamot Oil - Italian
Bergamot Oil - Ivory Coast
Bergamot Oil - non sensitizing
Bergamot Oil C.P. - non sensitizing
Bergamot Oil - rectified
Bitter Orange Oil 5 - Fold
Bitter Orange Oil C.P.

Grapefruit Oil 5 - Fold
Grapefruit Oil 10 - Fold
Grapefruit Oil C.P. - Argentina
Grapefruit Oil C.P. - Brazil
Grapefruit Oil C.P. - Florida
Grapefruit Oil C.P. - Israel
Grapefruit Oil C.P. - Pink
Grapefruit Oil Terpenes

Lemon Oil 5 - Fold
Lemon Oil 10 - Fold
Lemon Oil C.P. - Argentina
Lemon Oil C.P. - Arizona
Lemon Oil C.P. - Brazil
Lemon Oil C.P. - California
Lemon Oil Distilled
Lemon Oil C.P. - Israel
Lemon Oil C.P. - Italy
Lemon Oil non-sensitizing
Lemon Oil Terpenes
Lemon Oil Washed
Lime Oil 5 - Fold
Lime Oil Distilled - Haiti
Lime Oil Distilled - Ivory Coast

Lime Oil Distilled - Mexico
Lime Oil Distilled - Peru
Lime Oil Expressed "A" Mexico
Lime Oil Expressed "B" Mexico
Lime Oil Expressed "Tahiti"

Bitter Orange Oil 5 - Fold
Lime Oil Expressed - Persian
Lime Oil non - sensitizing
Lime Oil Terpenes

Orange Oil 5 - Fold
Orange Oil 10 - Fold
Orange Oil 20 - Fold
Orange Oil Bitter 5 - Fold
Orange Oil Bitter C.P.
Orange Oil C.P. - Brazil
Orange Oil Distilled - Brazil
Orange Oil C.P. - California
Orange Oil C.P. - Fla. Midseason
Orange Oil C.P. - Fla. Valencia
Orange Oil Distilled - Florida
Orange Oil C.P. - Israel
Orange Oil Terpenes

Tangerine Oil - Brazil
Tangerine Oil - Brazil 5 - Fold
Tangerine Oil - Florida
Tangerine Oil - Florida 5 - Fold
Tangerine Oil Terpenes
Natural Sourcing, LLC - USA

Essential Oils

Bergamot, Italy
Bergamot, Ivory Coast

Grapefruit Pink, USA
Grapefruit White, USA

Lemon Tea Tree, Australia
Lemon CP, Argentina
Lemon, Spain
Lemon, USA
Lime CP, Mexico
Lime Distilled, West Indian
Lime, USA
Litsea Cubeba, China

Mandarin King, Spain

Orange Sweet CP, Brazil
Orange Sweet, Spain

Tangerine CP, USA

Valencia Orange CP, USA
Oliganic - USA

Essential Oils

Bergamot - Brazil
Bergamot - Italy

Grapefruit - Australia
Grapefruit - Beliz
Grapefruit - Israel
Grapefruit - USA ( Florida )

Mandarin - Brazil
Mandarin - Italy

Orange - Belize
Orange - South Africa
Orange - USA ( CA )
Orange - Brazil
Orange - USA ( FL )
Orange Navel - Australia
Orange Navel - Israel
Orange Pera - Brazil
Orange Shamouti - Israel
Orange Valencia - Brazil
Orange Valencia - Israel
Orange Valencia - USA ( FL )

Tangerine - Brazil
Tangerine - USA ( FL )
PCAS - France

Specialty Chemicals Odor Classification

Citrus Oils

Butyl Methyl Anthranilate Iso

Cyclomugal Nitrile

Dimethyl Anthranilate

Hexenyl Tetrahydro Iso
  Benzaldehyde

Jaffaral

Methyl n - Methyl Anthranilate
The Citrus Notes of Fragrance

PFW Aroma Chemicals - The Netherlands

Fine Chemicals

Lemon Isolate

Natural Orangnal

Orange Isolate
Orange LF115
P.P. Sheth & Co. - India

Essential Oils

Bergamot Oil

Lemon Oil Spanish
Lemon Oil Washed
Lemon Terpenes
Lime Oil, Distilled
Litsea Cubeba Oil
Litsea Terpenes

Orange Oil
Paul Kaders GmbH - Germany

Fine Aroma Products

Bergamot Oil

Lemon Oil
Lime Oils ( c.p. / dist. )
Litsea Cubeb Oil min. 75%

Mandarin Oils ( Green / Red / Yellow )

Orange Oil, bitter
Orange Oil, sweet
Orange Oil, folded/concentrated
Orange Oil, free from Hydrocarbons

Tangerine Oil

Aromatic Chemicals

Citral

Grapefruit Aldehyde

Limonene - d
Limonene - l 80°

Valencene
Payan Bertrand SA - France

Essential Oils, Absolutes & Specialties

Bergamot Italy
Bergamot Ivory Coast
Bergamot Rectified Oil
Bergamot Terpeneless Oil
Bergamot Terpeneless rectified Oil

Grapefruit Oil

Lemon Italy Oil
Lemon Ivory Coast Oil
Lime Oil
Litsea Cubeba Oil

Mandarin Concentrated Oil
Mandarin Red Oil

Orange Bitter Oil
Orange Sweet
### Natural Chemicals

<table>
<thead>
<tr>
<th>Citrus Oil</th>
<th>Terpenes</th>
<th>Aromatic Chemicals</th>
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</thead>
<tbody>
<tr>
<td>Bergamot Oil</td>
<td>Tangerine Oil, Cravo</td>
<td>Citral Natural</td>
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<tr>
<td>Bergamot Oil Terpeneless</td>
<td>Tangerine Oil 5-Fold</td>
<td>Citric Acid Anhydrous Granular</td>
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<tr>
<td>Bergamot Oil Bergaptene Free</td>
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<td>Citric Acid Anhydrous Powder</td>
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<tr>
<td>Grapefruit Oil</td>
<td>Terpenes</td>
<td>Citric Acid Monohydrate</td>
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<td>Lemon Oil</td>
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<td>Citronellal FCC</td>
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<td>Lemon Oil FCC</td>
<td>Citral Terpenes</td>
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<td>Lemon Oil (Furo Coumarin Free)</td>
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<td>Lemon Oil-5-Fold California</td>
<td>Grapefruit Oil Terpenes</td>
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<td>Lemon Oil Italian</td>
<td>Lemon Terpenes</td>
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<tr>
<td>Lemon Oil Petitgrain</td>
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<tr>
<td>Lemon Oil Terpeneless</td>
<td>Lime Oil Terpenes</td>
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<tr>
<td>Lemon Oil, Washed</td>
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<tr>
<td>Lime Oil</td>
<td>Litsea Cubeba Oil Terpenes</td>
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<tr>
<td>Lime Oil Distilled 4 Fold</td>
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<td>Lime Oil Distilled 5 Fold W.I.</td>
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<td>Lime Oil Expressed</td>
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<td>Linseed Oil</td>
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<tr>
<td>Litsea Cubeba Oil</td>
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<td>Mandarin Oil</td>
<td>Methyl Amyl Ketone</td>
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<td>Orange Oil FCC</td>
<td>Methyl Anthranilate</td>
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<td>Orange Oil 5 Fold</td>
<td>Nootkatone</td>
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<td>Orange Oil 10 Fold</td>
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<tr>
<td>Orange Oil, Bitter</td>
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<tr>
<td>Orange Oil Valencia 2X Rectified</td>
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<tr>
<td>Orange Oil, Sweet</td>
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<tr>
<td>Orange Oil Terpeneless</td>
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</tbody>
</table>

The Citrus Notes of Fragrance
A Complete Listing

Bergamot Mint Oil
Bergamot Oil
Bergamia Wright Et Arn.
Bergamot Oil Bergaptene Free
Bergamot Orange Oil Bergaptene Free

Citrus Aurantium Oil
Citrus Peel Oil
Citrus Peel Oil Bitter - Brazil, China
Citrus Oil - Paraguay
Citrus Dancy Oil
Citrus Fruit Oil
Citrus Hystrix Leaf Oil
Citrus Junos Oil
Citrus Limon Leaf Oil
Citrus Limon Oil - California
Citrus Limon Oil Distilled
Citrus Mandarin Leaf Oil
Citrus Mandarin Oil - Italy
Citrus Maxima Oil
Citrus Medica Peel Oil
Citrus Paradisi Oil - California
Citrus Peel Oil C.P. - Brazil, California, China, Florida, Valencia
Citrus Peel Oil Distilled

Grapefruit Oil C.P. - California

Lemon Oil Distilled
Lemon Oil Expressed - California
Lime Oil Distilled - Mexico
Lime Oil Expressed - Florida
Litsea Cubeba Oil - China
Litsea Elliptica Leaf Oil - Malaysia

Mandarin Oil - Italy
Orange Leaf Oil Bitter
Orange Peel Oil Bitter - Brazil
Orange Peel Oil Bitter - China
Orange Peel Oil Sweet C.P. - Brazil, California, China, Florida, Valencia
Orange Peel Oil Sweet Distilled
Tangerine Dancy Oil

Lemon Balm Oil
Lemon Leaf Oil
The Citrus Notes of Fragrance

Petit Marie - Brazil

Lista De Produtos

Bergamot Italy Oil
Bergamot Ivory Coast Oil

Grapefruit Oil

Lime Distilled Oil
Litsea Cubeba Oil

Orange Oil
Orange Bitter Oil

Terpenes

Lemon Terpenes

Aromatic Chemicals

Citral
Citral Dimetil Acetal
Citralva - Geranil Nitrile
Citratal
Citronelal

Di Hidro Mircenol

Iso Ciclo Citral

Mandarinal
Metil Antranilato Metila
Essential Oils

Bergamot Oil
Bergamot Oil B.F.

Grapefruit Oil

Lemon Oil
    Argentina, Spanish
Lemongrass Oil
Lime Oil Distilled Mexican
Lime Oil Expressed Mexican

Mandarin Oil Italian

Tangerine Oil
# Polarome International - USA

## Product Listing

<table>
<thead>
<tr>
<th>Component</th>
<th>Method</th>
<th>Notes</th>
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<tr>
<td>Bergamot Decolorized</td>
<td>NPS w/ Vit. E</td>
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<tr>
<td>Bergamot Oil FCC</td>
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<tr>
<td>Bergamot Oil Italian</td>
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<tr>
<td>Bergamot Oil Ivory Coast</td>
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<tr>
<td>Bergamot Oil Non Sensitizing C.P.</td>
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<td>Bergamot Oil Rectified</td>
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<td>Grapefruit California C.P.</td>
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<td>Grapefruit Extract Natural 4/02</td>
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<td>Grapefruit Oil 10 - Fold</td>
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<tr>
<td>Grapefruit Oil 5 - Fold</td>
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<tr>
<td>Grapefruit Oil Argentina C.P.</td>
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<td>Grapefruit Oil Pink C.P.</td>
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<td>Grapefruit Oil South Africa C.P.</td>
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<td>Lemon Brute Decolorized</td>
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<td>Lemon Oil California C.P.</td>
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<td>Lemon Oil Distilled</td>
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<td>Lemon Oil Non-Sensitizing</td>
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<td>Lemon Oil South African C.P.</td>
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<td>Lemon Oil Washed</td>
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<td>Lime CP Decolorized</td>
<td>NPS w/ V. E</td>
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<td>Lime Oil 5 - Fold</td>
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<td>Lime Oil Distilled Haiti</td>
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<td>Lime Oil Distilled Ivory Coast</td>
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<td>Lime Oil Distilled Mexican</td>
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<td>Lime Oil Distilled Peruvian</td>
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<td>Lime OilExpressed “ Tahiti”</td>
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<td>Litsea Cubeba Oil</td>
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<td>Litsea Cubeba Oil Terpenes</td>
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<td>Mandarin Oil Brazilian Yellow C.P.</td>
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<td>Orange Oil 20 - Fold</td>
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<td>Orange Oil 5 - Fold</td>
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<td>Orange Oil Bitter 5 - Fold</td>
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<td>Orange Oil Israel C.P.</td>
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<td>Terpenes</td>
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<td>Grapefruit Oil Terpenes</td>
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<tr>
<td>Lime Oil Terpenes</td>
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</tbody>
</table>
Orange Oil Terpenes

Aromatic Chemicals

Citral Natural
Citral Synthetic
Citronellal Natural

Methyl Antanilate
The Citrus Notes of Fragrance

Prima Fleur - USA

Essential Oils

Bergamot
   Citrus Bergamia - Peel
Bergamot Bergaptene Free
   Citrus Bergamia - Peel

Clementine
   Citrus Clementine - Peel

Grapefruit Pink
   Citrus Paradisi - Peel

Lemon Organic
   Citrus Limon - Peel
Lemon Regular
   Citrus Limon - Peel

Mandarin Green
   Citrus Reticulata - Peel
Mandarin Red
   Citrus Reticulata - Peel
Mandarin Yellow
   Citrus Reticulata - Peel

Orange Regular
   Citrus Sinensis - Peel
Orange Organic
   Citrus Sinensis - Peel
Orange Blood Regular
   Citrus Sinensis - Peel

Tangerine Regular
   Citrus Reticulata - Peel
Prodasynth - France

Aroma Product Line

Citral Di Ethyl Acetal
Citral Di Methyl Acetal
Citral F.C.C.
Citronellol A.J.
Corps Pamplemousse 10 %
Limonen

D - Limonene

Lime Base 400
Lime Oil 410

Methyl Anthranilate Methyle
Methyl Anthranilate Methyle natural
Puressence Wuersten Inc. - Switzerland

Essential Oils

Bergamot Oil
Grapefruit Oil Pink
Grapefruit Oil White
Grapefruit Oil (sesqui) Terpeneless

Lemon Oil
Lemon Oil Folded/Terpeneless
Lime Oil c/p.
Lime Oil Distilled

Mandarin Oil
Mandarin Oil Folded Terpeneless

Orange Oil Bitter
Orange Oil Sweet
Orange Oil Dark, 2000 ppm
Orange Oil Folded/Terpeneless

Tangerine Oil

Citrus Oils

Grapefruit Aldehyde
Grapefruit Oil ( pink / white ) - USA, Israel, South America, Cyprus, West Indies
Grapefruit Oil (sesqui) Terpeneless
Grapefruit Oil Concentrated
Grapefruit Oil 5, 10 - Fold

Lemon Aldehyde

Lemon Essence / Juicerecovery Oil - Single Strength
Lemon Essence / Juicerecovery Oil 5, 10 - Folded
Lemon Oil - Italy, USA, South America, Israel, Greece
Lemon Oil ( sesqui ) Terpeneless
Lemon Oil 9882 Special Grade - Europe
Lemon Oil Concentrated
Lemon Oil Folded 5, 10 - Folded
Lime Oil C.P.
Lime Oil Distilled
Lime Oil (sesqui) Terpeneless
Lime Oil Concentrated
Lime Oil Folded 5,10 - Fold

Mandarin Oil
Mandarin Oil 5, 10 Folded
Mandarin Oil Green - Italy, Spain, North Africa, USA
Mandarin Oil Red - Italy, Spain, North Africa, USA

Orange Aldehyde
Orange Carbonyls
Orange Essence Oil - Single Strength / Folded
Orange Juicerecovery Oil - Single Strength / Folded
Orange Oil Booster
Orange Oil (sesqui) Terpeneless

Orange Oil 2000 ppm natural Colour
Orange Oil Bitter - West Indies, Italy, Spain
Orange Oil Concentrated
Orange Oil Folded 5, 10 - Folded
Bergamot Terpenes
Citral Terpenes
Grapefruit Terpenes
Lemon Terpenes
Lime Terpenes
Orange Terpenes
Quality Analysis Ltd. - U.K.

Products List

Bergamot Oil FCF - Sicily
Bergamot Oil Natural - Sicily

Grapefruit Oil - Cyprus

Lemon Oil - Sicily, South Africa, Spain
Lemongrass Oil - Guatemalan, India
Lime Oil - Peru
Litsea Cubeba Oil - China

Mandarin Oil Green - Sicily
Mandarin Oil Red - Brazil

Orange Oil Bitter - West Indies
Orange Oil Sweet - Brazil, Israel

Tangerine Oil - U.S.A.
The Citrus Notes of Fragrance

Rai Ingredients - Brazil

Raw Materials

Citral Pure
Citralva

Dihydromyrcenol

Grapefruit S Givco 230

Lemon Sicilian Extra OE
Lemon Thai Extra OE

Mandarine Green Orange
   Extra OE

Orange
Orange OE

China Perfumer - Givaudan
Product Listing

Di Methyl Anthranilate

Lemarome N
Lemonile
Limetol

Methyl Pamplemousse

Tangerinol
Tangeis Givco 212
Raj Aromatics Aroma Corporation - India

Essential Oils & Aromatic Chemicas

Bergamet ESS
Bergamet Oil Bergaptenfree
Bergamet Oil
Bergamet Pure
Bergamet STD

Lemon Oil Standard
Lemon Pure
The Citrus Notes of Fragrance

Rosetta Enterprises, LLC - USA

Products

Bergamot Italian

Grapefruit CP Pink
Grapefruit CP White
Grapefruit Expressed FCC

Lemon California Star Brand FCC
Lemon CP Argentina
Lemon CP Italian
Lemongrass Guatemala FCC
Lime Expressed FCC
Lime Expressed Mexican FCC
Limes Distilled Mexican FCC
Limes Distilled Peru FCC
Litsea Cubeba

Mandarin Italian FCC

Orange Bitter West Indian
Orange Brazil Sweet FCC
Orange CP Brazil
Orange CP California FCC
Orange CP Florida Mid Season FCC
Orange CP Florida Valencia FCC
Orange Distilled California FCC

Tangerine California FCC
Tangerine Dancy Type
Tangerine Florida FCC
SAT Group - India

Essential Oils

Bergamot Oil
Grape Fruit Oil
Lemon Oil
Lime Oil
Litsea Cubeba Oil
Mandarin Oil
Tangerine Oil
The Citrus Notes of Fragrance

SRS Aromatics Ltd. - U.K.

Perfumery Specialties

Bergamot Oil BPC
Lime Oil E 96

Aroma Chemicals

Citral 82
Citral 95
Citral
Citralone 76D
Citrocy 268 E
Di Hydro Myrcenyl Acetate
D-Limonene Redistilled

Gamma Terpinene P&G

Lemolate
Lemon Isolate

Myrcene Extra
San Miguel Agici y F - Argentina

Fine Oils & Aromatic Chemicals

Lemon Pulp Cells
Lemon Waer Phase ( Aroma )
Lemon Pulp Cells Aceptic
Lemon Juice Concentrated
Lemon Cold Pressed Oil
Lemon Juice Concentrated Aceptic
Lemon Peel Dehydrated
Lemon Oil Phase
Sarcom Inc. - USA

Fine Oils & Aromatic Chemicals

D’Limonene Florida
D’Limonene Brazil

Grapefruit Brazil
Grapefruit Florida

Litsea Cubeba 75 % China

Orange Brazilian Peta
Orange Mid-Season
Orange Valencia

Aromatic Chemicals

Dipentene China
Science Lab - USA

Essential Oils

Bergamot Oil Imitation
Bergamot Oil Natural

Grapefruit Oil C.P. FCC

Lemon Oil California
Lemon Oil California C.P. FCC
Lemon Oil Italian
Lemon Oil Italian C.P. FCC
Lime Oil Distilled
Lime Oil Mexican Distilled FCC

Mandarin Oil C.P. FCC

Orange Oil Bitter C.P. FCC
Orange Oil California
Orange Oil California C.P. FCC
Orange Oil Florida
Orange Oil Florida C.P. FCC
Orange Oil Sweet

Tangarine Oil Florida C.P.
Seema International - India

Product List

Bergamot Oil
Grapefruit Oil
Lemon Oil
Lime Oil
Mandarin Oil
Orange Oil
<table>
<thead>
<tr>
<th>Products</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bergamot Reggio Oil - Bergapten</td>
</tr>
<tr>
<td>Rain Free</td>
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<tr>
<td>Bergamot Reggio Oil - Rain</td>
</tr>
<tr>
<td>Bergamot Reggio Oil - Genuine</td>
</tr>
<tr>
<td>Organic</td>
</tr>
<tr>
<td>Bitter Orange C.P. - Sicily</td>
</tr>
<tr>
<td>Blood Orange Oil - Sicily</td>
</tr>
<tr>
<td>Biological Control</td>
</tr>
<tr>
<td>Blood Orange Oil - Sicily 10 Fold</td>
</tr>
<tr>
<td>Grapefruit Oil White - W.I.</td>
</tr>
<tr>
<td>Lemon Essence Oil</td>
</tr>
<tr>
<td>Lemon Oil Argentina - C.P.</td>
</tr>
<tr>
<td>Lemon Oil - Sicilian 2 Fold organic</td>
</tr>
<tr>
<td>Lemon Oil - Sicilian 5 Fold organic</td>
</tr>
<tr>
<td>Lemon Oil - Sicilian Sfumatrice</td>
</tr>
<tr>
<td>Lemon Oil - Sicily Wintercrop C.P.</td>
</tr>
<tr>
<td>Lemon Oil - Sicily Wintercrop C.P. organic</td>
</tr>
<tr>
<td>Lemon Oil Spanish C.P.</td>
</tr>
<tr>
<td>Lime Oil Five Fold</td>
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<tr>
<td>Lime Oil C.P. - W.I.</td>
</tr>
<tr>
<td>Lime Oil Dist. - W.I.</td>
</tr>
<tr>
<td>Litsea Cubeba Oil - China min. 75 %</td>
</tr>
<tr>
<td>Mandarin Green Oil - Sicily</td>
</tr>
<tr>
<td>Mandarin Red Oil C.P. - Sicily</td>
</tr>
<tr>
<td>Mandarin Red Oil C.P. - Sicily organic</td>
</tr>
<tr>
<td>Mandarin Yellow Oil - Sicily</td>
</tr>
<tr>
<td>Mandarin Red Oil - Sicily</td>
</tr>
<tr>
<td>Mandarin Red Oil - C.P. - Sicily</td>
</tr>
<tr>
<td>10 Fold</td>
</tr>
<tr>
<td>5 Fold</td>
</tr>
<tr>
<td>7 Fold</td>
</tr>
<tr>
<td>Orange Essence Oil</td>
</tr>
<tr>
<td>Orange Oil - 5 Fold, 7 Fold</td>
</tr>
<tr>
<td>Orange Pera Oil C.P. - Brazil</td>
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<tr>
<td>Orange California Oil C.P. - USP</td>
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<tr>
<td>Orange Florida Oil C.P. - Mids.</td>
</tr>
<tr>
<td>Orange Florida Oil C.P. Valencia</td>
</tr>
<tr>
<td>Orange Sweet Oil C.P. Argentina organic</td>
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<tr>
<td>Orange Sweet Oil C.P. - Sicily</td>
</tr>
<tr>
<td>Orange Terpenes</td>
</tr>
<tr>
<td>Tangerine Oil</td>
</tr>
<tr>
<td>Organic Essential Oils</td>
</tr>
<tr>
<td>Bergamot Oil - Reggio organic</td>
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<tr>
<td>Blood Orange Oil - Sicily biolog. contr.</td>
</tr>
<tr>
<td>Mandarin Red Oil - Italian</td>
</tr>
<tr>
<td>Orange Oil - Italy sweet organic</td>
</tr>
</tbody>
</table>
Shreeji Aroma - India

Essential Oils & Aromatic Chemicals

Bergamot
Lime C.P.
Mandarin
Orange Oil

Aromatic Chemicals

Citral
Di Hydro Myrcenol ( DEM )
Methyl Anthranilate
Sigma Aldrich - USA

Essential Oils

Bergamot Oil
Bergamot Oil non-sensitizing
Bergamot Oil Italian

Grapefruit Oil Florida

Lemon Oil, Argentina
Lemon Oil, C.P. California
Lime Oil, Haiti
Lime Oil, Mexico, Tahiti
Lime Oil FCC, Mexico
Litsea Cubeba Oil

Mandarin Oil, Argentina

Orange Oil, Brazil
Orange Oil, California
Orange Oil, Florida - Midseason
Orange Terpenes
Silvestris & Szilas Ltd. - Hungary

Essential Oils

Bergamot Oil
   (Citrus Bergamia)

Grapefruit Oil
   (Citrus Paradisi)

Lemon Oil
   (Citrus Limon)

Mandarin Oil
   (Citrus Reticula)

Orange
   (Citrus Aurantium)
Some Extracts - India

Products

Imported Essential Oils - Natural

Bergamot Oil 40/42 % Italy

Lemon Oil C.P. - Sicily
Lemon Oil T/L - Italy
Lemon Oil Pure - Italy
Lemon Oil 4 % Citral - Italy

Mandarin Oil Perf - Italy

Orange Oil 10 Fold - Brazil
Orange Oil C.P. - Brazil
Orange Oil 5 Fold - Brazil
Orange Oil FF - 1 - Brazil
Orange Oil T/L U.S.A.
Orange Oil 20 Fold - Brazil
The Citrus Notes of Fragrance

Sovimpex - France

Produits

Les Huiles Essentielles

Bergamote C.I
Bergamote Italie

D’Limonene

Limette Bresil CP

Mandarine - Bresil
Mandarine - Italie

Orange - Amere C.I.
Orange - Amere Haiti
Orange - Bresil
Orange Concentre 5X, 10X
Orange - Maroc

Tangerine - Bresil

Derives Naturelles

Citral
Citronellal

Nootkatone

Terpenes

Bergamote

Litsea

Mandarine
Orange
Pamplemousse

Aromatiques De Synthese

Citral Synthetique
Dihydromyrcenol
Spectrum Chemicals - USA

Fine Chemicals

Bergamot Oil Imitation
Grapefruit Oil Pink
Grapefruit Oil C.P. FCC

Lemon Oil California C.P. FCC
Lemon Oil Italian C.P. FCC
Lime Oil Distilled

Mandarin Oil C.P. FCC

Orange Oil California C.P. FCC

Tangerine Flavor Oil natural
Tangerine Oil C.P. Brazilian
Tangerine Oil natural
The Citrus Notes of Fragrance

Sundial Fragrances & Flavors - USA

Aromatic Chemicals

Citral
Citronella Oil Java

Di Hydro Myrcene 88 %
Di Hydro Myrcenol 97 %
Dipentine 122 Commercial Grade Natural
Dipentine LP Resin Grade
Dipentine Gica Solvent Grade
Dipentine Extra Pine Oil
Dipentine P & G Perfume Grade

Myrcene P & F, 88 %

Orange Terpenes 96 %
Sunrose Aromatics - USA

Aromatic Chemicals

Bergamot ( O )
Bergamot Calabria
Bergamot FCF Calabria
Bergamot FCF ( O ) NOP - Italy
Bergamot FCF Ivory Coast
Bergamot Mint India ( WC )
Bergamot, Ivory Coast

Clementine ( O )

Grapefruit, White ( O )

Lemon ( O )
Lemon Myrtle ( O )
Lemon Tea Tree ( O )
Lime, Cold Pressed ( O )
Lime, Steam Distilled
Litsea May Chang

Mandarin, Green
Mandarin, Red
Mandarin, Yellow

Orange, Bitter Brazil
Orange, Blood Italy
Orange, Blood Tarocco
Orange, Sweet ( O )

Tangerine ( O )
Symrise GmbH & Co. KG - Germany

Fragrance Ingredients

Citral FF
Citrylal
Citrylal E

Limettol natural
Limonene-d pure

Ozonil
Synaco Group - Belgium

Essential Oils

Bergamot Oil Italia

Grapefruit Oil

Lime Oil
Lime Oil Distilled
Lime Oil Terpenes
Litsea Cubeba Oil

Mandarine Oil Italia

Orange Oil
Orange Oil Brazil
Orange Oil Sweet
Orange Terpenes
The Citrus Notes of Fragrance

Synarome - France

Specialty Products

Lemonal
Takasago International Corporation - Japan

Aroma Chemicals Compendium

Citral E.Q.
Citral Extra
Citral Natural
Citronellal Terpenes
l-Citronellal
Citronellal Extra
Citronellal Natural
Citronellyl Nitrile
l-Citronellyl Nitrile

Di Hydro Myrcenol

Geranyl Nitrile

d-Limonene
D-Limonene - 1 Rectified
( Force A2 )
l-Limonene - 65
l - Limonene - 75
l-Limonene - 80
Limonene AB
l-Limonene Natural
Linacsol
Litsea Cubeba Terpenes

Myrcetol

Petitgrain Citronier Oil
a-Phellandrene
a-Pinene 95

a-Terpinene
Tetrahydro Myrcenol
The Citrus Notes of Fragrance

Taytonn Ptd Ltd. - Singapore

Fine Aromas

Aroma & Fine Companies Represented

CV Aroma
Capua
Citrovita
EOAS International
IFF
Miltitz Aromatics
Silvestris & Szilas
Taiwan Fine Chemicals
Toyotama
ITALIAN
Bergamot
Clementine
Lemon
Lime
Mandarin
Orange

BRAZILIAN
Citrus/Orange Terpenes
D’Limonene
Orange
Chinese
Citronella
International Flavors & Fragrances
Di Hydro Myrcenol
AROMA & FINE CHEMICALS
Bigarade Oxide
Citralis PQ
Citralis Nitrile
Taiwon Fine Chemicals
Citronellal
Others
Di Hydro Myrcenol
## Essential Oils by Country

<table>
<thead>
<tr>
<th>Country</th>
<th>Essential Oils</th>
<th>Country</th>
<th>Essential Oils</th>
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</thead>
<tbody>
<tr>
<td>Argentina</td>
<td>Lime Oil</td>
<td>Mexico</td>
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<tr>
<td>Grapefruit Oil</td>
<td>Guinea</td>
<td>Guinea</td>
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<tr>
<td>Lemon Oil</td>
<td>Bergamot Oil</td>
<td>Seychelles</td>
<td></td>
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<tr>
<td>Mandarin Oil</td>
<td>Bitter Orange Oil</td>
<td>Lemon Oil</td>
<td></td>
</tr>
<tr>
<td>Australia</td>
<td>Haiti</td>
<td>United States</td>
<td></td>
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<tr>
<td>Lemon Oil</td>
<td>Bitter Orange Oil</td>
<td>Grapefruit Oil</td>
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<tr>
<td>Brazil</td>
<td>Lime Oil</td>
<td>Lemon Oil</td>
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<tr>
<td>Grapefruit Oil</td>
<td>Israel</td>
<td>Lime Oil</td>
<td></td>
</tr>
<tr>
<td>Lemon Oil</td>
<td>Grapefruit Oil</td>
<td>Lime Oil</td>
<td></td>
</tr>
<tr>
<td>Lime Oil</td>
<td>Orange Oil</td>
<td>Orange Oil</td>
<td></td>
</tr>
<tr>
<td>Mandarin Oil</td>
<td>Italy</td>
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<tr>
<td>Orange Oil</td>
<td>Bergamot Oil</td>
<td></td>
<td></td>
</tr>
<tr>
<td>China</td>
<td>Lemon Oil</td>
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<tr>
<td>Lime Oil</td>
<td>Mandarin Oil</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Litsea Cubeba Oil</td>
<td>Orange Oil</td>
<td></td>
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</tr>
<tr>
<td>Mandarin Oil</td>
<td>Jamaica</td>
<td></td>
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<tr>
<td>Cuba</td>
<td>Lime Oil</td>
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<td></td>
</tr>
<tr>
<td>Bitter Orange Oil</td>
<td></td>
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</tr>
</tbody>
</table>
Thakker Group - India

Essential Oils & Fragrances

Bergomat Oil Extra - C.C.C. Italy
Bergomat Oil Pure - C.C.C. Italy
Bergomat Oil Standard - C.C.C. Italy

D’Limonene - Brazil

Litsea Cubeba Oil - China

Mandarin Oil Pure - C.C.C. Italy

Aromatic Chemicals

Citrylale - Symrise
Th. Gyer GmbH & Co. KG - Germany

Products

Aroma Chemicals

Citral
Citrylal
Limonene D pure
<table>
<thead>
<tr>
<th>Citreatt</th>
<th>Citrus Natural Citrus Specialties</th>
<th>Fraction 3802</th>
</tr>
</thead>
<tbody>
<tr>
<td>Citreatt Grapefruit 6150</td>
<td>Natural Grapefruit Aroma 3202</td>
<td>Natural Orange Oil Blend 4616 - More peely notes than 4832.</td>
</tr>
<tr>
<td>Citreatt Lemon 6122</td>
<td>Natural Grapefruit Oil Blend 4214 - Lighter and peelier than 4242</td>
<td>Natural Orange Oil Concentrate 4832 - Balanced between fresh and peely notes.</td>
</tr>
<tr>
<td>Citreatt Lemon 4124 T</td>
<td>Natural Grapefruit Oil Concentrate 4242 - Fresh notes from grapefruit essence oil are augmented by cold pressed oil fractions.</td>
<td>Natural Orange Oil Concentrate 4732 - More juicy / fresh notes than 4832.</td>
</tr>
<tr>
<td>Citreatt Lemon 3123</td>
<td>Natural Grapefruit Volatile Fraction 3301</td>
<td>Natural Orange Top Note Concen-trate 37513</td>
</tr>
<tr>
<td>Citreatt Lemon Essence 3147</td>
<td>Natural Orange Volatile Fraction 3801</td>
<td>Natural Orange Volatile Fraction 3801</td>
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<tr>
<td>Citreatt Lime 3135</td>
<td>Natural Lemon Aroma 3399</td>
<td>Natural Lemon Aroma 3399</td>
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<tr>
<td>Citreatt Lime 6134</td>
<td>Natural Lemon Oil Concentrate 4314 - Fruitier and fresher in character than 5 fold lemon oil.</td>
<td>Natural Lemon Oil Concentrate 4314 - Fruitier and fresher in character than 5 fold lemon oil.</td>
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<tr>
<td>Citreatt Lime Expressed 3163</td>
<td>Natural Lemon Aroma Light</td>
<td>Natural Orange Aroma Light</td>
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<tr>
<td>Citreatt Orange 6114</td>
<td>Natural Lemon Volatile Fraction 3401</td>
<td>Natural Orange Aroma Light</td>
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<tr>
<td>Citreatt Orange 6115</td>
<td>Natural Orange Aroma Concentrate 37500</td>
<td>Natural Orange Aroma Concentrate 37500</td>
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<tr>
<td>Citreatt Orange 3111</td>
<td>Natural Orange Oil Enriched 3798</td>
<td>Natural Orange Oil Enriched 3798</td>
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<tr>
<td>Citreatt Orange 3112</td>
<td>Natural Orange Aroma Light</td>
<td>Natural Orange Aroma Light</td>
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<tr>
<td>Citreatt Orange 3113</td>
<td>Natural Orange Oil Concentrate 37500</td>
<td>Natural Orange Oil Concentrate 37500</td>
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<tr>
<td>Citreatt Orange 6110</td>
<td>Natural Orange Aroma Enriched 3798</td>
<td>Natural Orange Aroma Enriched 3798</td>
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<tr>
<td>Citreatt Orange 4117 T</td>
<td>Natural Orange Aroma Light</td>
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<tr>
<td>Citreatt Orange Essence 3187</td>
<td>Natural Orange Aroma Light</td>
<td>Natural Orange Aroma Light</td>
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</table>

Citrus Specialties

<table>
<thead>
<tr>
<th>Citrus Specialties</th>
<th>Notes</th>
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<tr>
<td>Natural Grapefruit Aroma 3202</td>
<td>More peely notes than 4832.</td>
</tr>
<tr>
<td>Natural Grapefruit Oil Blend 4214 - Lighter and peelier than 4242</td>
<td>Natural Orange Oil Concentrate 4832 - Balanced between fresh and peely notes.</td>
</tr>
<tr>
<td>Natural Grapefruit Oil Concentrate 4242 - Fresh notes from grapefruit essence oil are augmented by cold pressed oil fractions.</td>
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</tr>
<tr>
<td>Natural Grapefruit Volatile Fraction 3301</td>
<td>Natural Orange Top Note Concentrate 37513</td>
</tr>
<tr>
<td>Natural Lemon Aroma 3399</td>
<td>Natural Orange Volatile Fraction 3801</td>
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<tr>
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<td>Natural Lemon Aroma Light</td>
<td>Natural Orange Aroma Light</td>
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<td>Natural Orange Oil Blend 4616</td>
<td>Natural Orange Oil Blend 4616 - More peely notes than 4832.</td>
</tr>
<tr>
<td>Natural Orange Oil Concentrate 4832 - Balanced between fresh and peely notes.</td>
<td>Natural Orange Oil Concentrate 4732 - More juicy / fresh notes than 4832.</td>
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</tr>
<tr>
<td>Natural Orange Volatile Fraction 3801</td>
<td>Natural Lemon Aroma 3399</td>
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</tbody>
</table>
Lime Oil Expressed
  Furanocoumarine Free
Lime Oil Roses Type
Lime Terpenes

Mandarin Oil Cold Pressed
Mandarin Oil Distilled

Orange Oil
Orange Oil Bitter
Orange Oil Phase/Orange Essence Oil
Orange Terpenes

Tangerine Oil

Essential Oils

Bergamot Oil Italian

Grapefruit Oil

Lemon Oil Californian
  Ivory Coast/Sicilian/SPANISH
Lemon Oil Distilled
Lemon Oil Phase (ex juice)
Lemon Oil Terpenes
  Distilled/Washed
Lemongrass Oil
Lemongrass Oil Terpenes
Lime Oil Distilled Ivory
  Coast/Mexican/Peruvian
Lime Oil Expressed
  Furanocoumarine Free
Lime Oil Expressed Mexican
Lime Oil Roses Type
Lime Oil Terpenes
Litsea Cubeba Oil min. 75 pct
Litsea Cubeba Oil Terpenes

Mandarin Oil Italian Cold Pressed
Mandarin Oil Italian Distilled

Orange Oil Bitter
  Sicilian/West Indian
Orange Oil C.P. Terpenes
Orange Oil Sweet
  Brazilian/Cyprus/Florida
Midseason
Orange Phase/Juice Oil

Tangelo Oil

Tangerine Oil Brazil/Florida
Tangerine Oil Distilled N.I.

Natural Chemicals

Citral Ex Lemon
Citral Extra
Citral Standard
Citronellal

Dimethyl Anthranilate
D-Limonene Citreatt

Gamma Terpinene 60% Ex Lemon
Gamma Terpinene 70% Ex Lemon
Lemon Carbonyls
Lemon Ginger Sesquiterpenes
Lemonox

Myrcene Ex Orange

Octanal 50% Ex Grapefruit
Octanal 50% Ex Orange
Octanal 90% Ex Grapefruit
Octanal 90% Ex Orange

Valencene 50%
Valencene 75%

Rectified Oils

Citreatt Range of Citrus Oils

Grapefruit Oil 4, 5, 10 Fold ( also available in colour rectified form )
Grapefruit Oil Terpeneless

Lemon Essence Oil 5 Fold
  Premium/Enriched
Lemon Oil 2, 4, 5, 8 Fold
Lemon Oil Sesquiterpeneless
Lemon Oil Terpeneless
Lime Oil Distilled 2, 4 Fold
Lime Oil Distilled
  Sesquiterpeneless
Lime Oil Distilled Terpeneless
Lime Oil Expressed 2, 4 Fold
Lime Oil Expressed Terpeneless

Mandarin Oil Distilled 5 Fold
Mandarin Oil Expressed 2, 4 Fold
Mandarin Petitgrain Oil
  Terpeneless

Orange Essence Oil 7
Orange Essence Oil Top Notes
Orange Oil 2, 4, 5, 8, 10, 20 Fold
  (also available in colour rectified form)
Orange Oil Bitter 5 Fold
Orange Oil Sesquiterpeneless
Orange Oil Terpeneless

Tangerine Oil 5 Fold
Tangerine Oil Terpeneless
## Essential oil Map of the World by Treatt USA Inc.

<table>
<thead>
<tr>
<th>Region</th>
<th>Essential Oils</th>
</tr>
</thead>
<tbody>
<tr>
<td>Europe</td>
<td>Orange</td>
</tr>
<tr>
<td></td>
<td>Tangerine</td>
</tr>
<tr>
<td></td>
<td>Turkey</td>
</tr>
<tr>
<td></td>
<td>Grapefruit</td>
</tr>
<tr>
<td>Albania</td>
<td>Orange</td>
</tr>
<tr>
<td>Greece</td>
<td>Orange</td>
</tr>
<tr>
<td></td>
<td>Lemon</td>
</tr>
<tr>
<td></td>
<td>Cote D' Ivoire</td>
</tr>
<tr>
<td>Italy</td>
<td>Lemon</td>
</tr>
<tr>
<td></td>
<td>Cote D'Ivoire</td>
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<tr>
<td></td>
<td>Mandarin</td>
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<tr>
<td></td>
<td>Tangerine</td>
</tr>
<tr>
<td></td>
<td>Israel</td>
</tr>
<tr>
<td></td>
<td>Egypt</td>
</tr>
<tr>
<td>Spain</td>
<td>Tangerine</td>
</tr>
<tr>
<td></td>
<td>Lemon</td>
</tr>
<tr>
<td></td>
<td>South Africa</td>
</tr>
<tr>
<td></td>
<td>Mandarin</td>
</tr>
<tr>
<td></td>
<td>Grapefruit</td>
</tr>
<tr>
<td></td>
<td>South Africa</td>
</tr>
<tr>
<td></td>
<td>Lemon</td>
</tr>
<tr>
<td></td>
<td>Orange</td>
</tr>
<tr>
<td></td>
<td>Grapefruit</td>
</tr>
<tr>
<td></td>
<td>Lemon</td>
</tr>
<tr>
<td></td>
<td>Orange</td>
</tr>
<tr>
<td></td>
<td>Mandarin</td>
</tr>
<tr>
<td></td>
<td>Tangerine</td>
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<tr>
<td></td>
<td>Tangerine</td>
</tr>
<tr>
<td>Country</td>
<td>Fruit</td>
</tr>
<tr>
<td>------------------</td>
<td>----------------------</td>
</tr>
<tr>
<td>Swaziland</td>
<td>Costa Rica</td>
</tr>
<tr>
<td>Lime</td>
<td>Orange</td>
</tr>
<tr>
<td>Zimbabwe</td>
<td>Guatemala</td>
</tr>
<tr>
<td>Orange</td>
<td>Lime</td>
</tr>
<tr>
<td>North America</td>
<td>Mexico</td>
</tr>
<tr>
<td>United States</td>
<td>Grapefruit</td>
</tr>
<tr>
<td>Grapefruit</td>
<td>Lime</td>
</tr>
<tr>
<td>Lemon</td>
<td>Orange</td>
</tr>
<tr>
<td>Orange</td>
<td>Tangerine</td>
</tr>
<tr>
<td>Tangerine</td>
<td>South America</td>
</tr>
<tr>
<td>Caribbean</td>
<td>Argentina</td>
</tr>
<tr>
<td>Cuba</td>
<td>Grapefruit</td>
</tr>
<tr>
<td>Grapefruit</td>
<td>Lemon</td>
</tr>
<tr>
<td>Lime</td>
<td>Mandarin</td>
</tr>
<tr>
<td>Orange</td>
<td>Orange</td>
</tr>
<tr>
<td>Haiti</td>
<td>Brazil</td>
</tr>
<tr>
<td>Lime</td>
<td>Bergamot</td>
</tr>
<tr>
<td>Central America</td>
<td>Grapefruit</td>
</tr>
<tr>
<td>Belize</td>
<td>Lemon</td>
</tr>
<tr>
<td>Grapefruit</td>
<td>Lime</td>
</tr>
<tr>
<td>Orange</td>
<td>Mandarin</td>
</tr>
<tr>
<td>Orange</td>
<td>Orange</td>
</tr>
</tbody>
</table>
The Citrus Notes of Fragrance

Indonesia

Lime

Japan

Tangerine Yuzu

Pakistan

Mandarin

Tangerine

Thailand

Lime

Viet Nam

Litsea Cubeba
Trisenx, Inc. - USA

Fine Aromatic Chemicals

Citral S

Geranyl Nitrile ( Corps M 227 )

Mandarine Aldehyde
Mandarin Oil ( Italy Yellow )

Orange Oil ( Florida )

Esters

Methyl Anthranilate
Uhe Company, Inc. - USA

Essential Oils & Aroma Chemicals

Bergamot Italian

Grapefruit

Lemon
Lemon Washed
Lime Distilled
Lime Expressed
Litsea Cubeba 75%

Mandarin

Orange

Tangerine
Ultra International Limited - India

Natural Essential Oils

Bergamote
Grapefruit
Lemon
Lemongrass
Lime
Lime Terpeneless
Mandarin
Mandarin Red
Orange Bitter
Orange Sweet

Natural Reconstruction Oils

Bergamot
Bergamot - 1506
Lemon
Lemon Italian
Ungerer & Company - USA

Essential Oils Compendium

Bergamot Italian

Grapefruit CP Pink
Grapefruit CP White
Grapefruit Expressed FCC

Lemon California Type Star Brand FCC
Lemon CP Argentina FCC
Lemon Italian CP FCC Extra
Lemongrass Guatemala FCC
Lime Expressed FCC
Lime Expressed Mexican FCC
Lime Distilled Mexican FCC
Lime Distilled Peru FCC

Mandarin Italian FCC

Orange Bitter West Indian
Orange Brazil Sweet FCC
Orange CP Brazil
Orange Distilled California FCC
Orange Sweet Cold Pressed California FCC
Orange Sweet Expressed Florida
  Valencia FCC
Orange Sweet Expressed Florida
  Mid Season FCC

Tangerine Florida FCC
Tangerine California FCC
Tangerine Dancy Type
Ventos, Ernesto S.A. - Spain

Products

Bergamot Oil, Bergaptene Free
Bergamot Oil, Italy
Grapefruit Oil Red
Grapefruit Oil White

Lemon Oil 5 X
Lemon Oil 10 X
Lemon Oil Phase
   ( Lemon Essence )
Lemon Oil, Brazil
   ( Tahiti Type )
Lemon Oil, Spain
Lemon Oil, Washed
Lemon Terpenes, Natural
Lemon Water Phase
   ( Lemon Aroma )
Lemongrass Oil, India
Lemongrass Oil, South America
Lime Oil 5 X
Lime Oil, Cold Pressed
Lime Oil, Coumarin Free
Lime Oil, Distilled
Litsea Cubeba Oil
Litsea Terpenes

Mandarin Oil 4X
Mandarin Oil, Clementine
Mandarin Oil, Green

Orange Oil 5 X
Orange Oil 10 X
Orange Oil 10 X Colorless

INTERNATIONAL FLAVORS & FRAGRANCES

Dimyrcetol
Mandarin Oliffac
Myrcenyl Acetate
Pamplefleur
Triplal

Aromatic Chemicals

Citral - DMA
Citral Extra - BASF
Citral, Synthetic
Citralva - IFF
Citralva Plus - IFF
Citrathal ( Citral Di Ethyl Acetal )

Di Hydro Myrcenol - IFF
Di Hydro Myrcenyl Acetate
Di Myrcetol - IFF

Mandarine Aldehyde 10 % Citr - Firmenich
The Citrus Notes of Fragrance

Menthanyl Acetate - IFF
Myrcene
Myrcenol Super - IFF
Myrcenyl Acetate - IFF
Pamplefleur - IFF
Triplal - IFF
Venus Enterprises Ltd. - U.K.

Products

Bergamot
D’Limonene
Grapefruit Oil

Lemon Oil
Lime Oil
Litsea Cubeba Oil

Orange Bitter Oil
Orange Sweet Oil

Tangerine Oil

Terpenes

Orange

Aromatic Chemicals

Citral
Citronellal

Di Hydromyrcene
Dihydro Myrcenol
Dimethyl Anthranilate natural
The Citrus Notes of Fragrance

Vigon International, Inc. - USA

Essentials Oils

Bergamot Oil Terpeneless
Grapefruit Oil White
Grapefruit Terpenes

Lemon Concentrate
Lemon Concentrate Citra Fresh
Lemon Distilled
Lemon Essence Oil Enriched
Lemon Essence Oil Terpeneless
Lemon Fresh Sliced C.P. Oil
Lemon Lime Washed
Lemon Oil California
Lemon Oil California 2X
Lemon Oil California 3X
Lemon Oil California 5X
Lemon Oil California Distilled
Lemon Oil Italian
Lemon Oil Terpeneless WONF
Lemon Terpeneless AP
Lemon Terpenes
Lime Concentrate Citra Fresh
Lime Essence Oil REDD
Lime Oil Distilled Terpeneless
Lime Oil Expressed Terpenes
Lime Oil Mexican Distilled
Lime Oil Terpeneless Expressed
Lime Oil Washed
Lime Terpenes

Orange Centaur w/o BHA
Orange C.P. Oil 5 - Fold
Orange Enriched C.P. Oil
Orange Essence Oil 3-Fold
Orange Essence Oil 5-Fold
Orange Essence Oil 7-Fold
Orange Essence Oil Enriched
Orange Essence Fresh Sliced
Orange Essence Oil 3-Fold REDD
Orange Essence Oil 5-Fold REDD
Orange Essence Oil 7-Fold REDD
Orange Essence Oil Florida REDD
Orange Essence Oil Neo REDD
Orange Essence Oil REDD
Orange Essence Oil Top Note
Orange Essence Oil Top Note
Tangerine Oil
Tangerine Oil Expressed
Tangerine Oil Redd Enriched
5-Fold REDD
Orange Essence Oil Florida
Orange Essence Oil Florida Light
Orange Oil 15 X Distilled
Orange Oil California
Orange Oil Concentrate Citra
Orange Oil Dolcott 5X
Orange Oil Florida
Orange Oil Premium Distillate

Orange Essence Oil Top Note
Tocopherols
Orange Terpeneless C.P. Oil Redd
Orange Terpenes Redistilled

Tangerine Oil
Tangerine Oil Expressed
Tangerine Oil Redd Enriched
5-Fold
W & W Australia Pty Ltd. - Australia

Essentials Oils

Bergamot Oil
Litsea Cubeba Oil
Mandarin Oil CP
Orange Oil Brazil
Orange Oil C.P.

Aromatic Chemicals

Cirtal Extra
Citral Natural
Citronellal
Di Hydro Myrcenol
Methyl Anthranilate
The Citrus Notes of Fragrance

Walsh, John D., Company Inc. - USA

Products

Bergamot Oil, B.F.  Methyl Anthranilate
Grapefruit Oil  Myrac Aldehyde
Grapefruit Terpenes  Myrcene
Lemon Oil  Mylecine
Lemon Terpenes  Myrcenyl Acetate
Lemon Washed
Lime Oil  Natural Orangenal
Lime Terpenes  Neobergamate Forte
L'Limonee - 65
Mandarin Oil, Italian  Orange Isolate
Orange Oil  Triplal
Orange Oil, Five Fold
Orange Terpenes

Tangerine Oil

Aromatic Chemicals & Naturals

Citral
Citral Dimethyl Acetal
Citralis Nitrile
Citralva
Citratral
Citrofuran

Dihydro Myrcenol

Grapefruit Isolate
Essential Oils & Essences

Bergamot Oil
Bergamot Terpenes Oil
Grapefruit Oil California
Grapefruit Florida Oil
Grapefruit Israel Oil
Grapefruit Terpenes Oil
Lemon Argentina Oil
Lemon Brazilian Oil
Lemon California Oil
Lemon Juice Carbonyls
Lemon Terpenes Oil
Lemongrass Oil
Lemongras Terpenes
Lime Mexican Oil
Lime Persian Oil
Lime Peruvian Oil
Lime Terpenes Oil
Lime Oil West Indian
Litsea Cubeba Oil
Litsea Cubeba Terpenes
Magnolia Flowers Oil
Mandarin Italian Oil
Mandarin Petitgrain Oil
Mandarin Petitgrain Terpenes
Orange Juice Carbonyls
Orange Oil Brazilian
Orange Oil California
Orange Oil Florida
Orange Oil Israeli

Orange Oil Sweet
Orange Terpenes Oil
Orange Valencia Oil
Tangerine Oil
Tangerine Terpenes

Aromatic Chemicals

Citral FCC
Citral 95 %
Citral 96 %
Citral Di Ethyl Acetal ex Litsea Cubeba
Citral Residues
Citral Terpenes
Citronellal ex Citridiora Oil
Citronellal Residues
Gamma Terpinene
Grapefruit Mercaptan 10 % in Triacetin
Grapefruit Mercaptan 1 % in PG
Grapefruit Mercaptan .1 % in PG
Grapefruit Mercaptan 1 % in Limonene
Grapefruit Mercaptan 1 % in Triacetin
Methyl Anthranilate Extra
Nootkatone 60/70 %
## Citrus Notes

<table>
<thead>
<tr>
<th>Ingredient</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Abbarome 011</td>
<td>Citrus, herbal, fresh.</td>
</tr>
<tr>
<td>Acerola</td>
<td>Any of various species of the genus Malpighia. The fruit has a citrusy like fragrance sweet and fresh.</td>
</tr>
<tr>
<td>Acetate C - 10</td>
<td>Sweet fatty fruity odor of pineapple orange.</td>
</tr>
<tr>
<td>Alcohol C - 8</td>
<td>Powerful fresh, orange rose like waxy &amp; sweet odor.</td>
</tr>
<tr>
<td>Alcohol C - 11 Lenic</td>
<td>Fresh rather fatty odor, citrusy waxy rosy, petal like note.</td>
</tr>
<tr>
<td>Alcohol C - 11 Saturated</td>
<td>Oily fruity floral citrussy odor slight fatty overall fresh.</td>
</tr>
<tr>
<td>Aldehyde C - 10</td>
<td>Powerful sweet waxy orange peel like odor.</td>
</tr>
<tr>
<td>Aldehyde C - 11 Lenic</td>
<td>Powerful waxy rosy citrusy odor.</td>
</tr>
<tr>
<td>Aldehyde C - 12 MOA</td>
<td>An aldehyde with a citrus tangerine note.</td>
</tr>
<tr>
<td>Aldehyde Mandarine 10 %</td>
<td>A mandarin orange fresh and citrusy.</td>
</tr>
<tr>
<td>Aldenal C - 9</td>
<td>Blend of saturated unsaturated aldehydes powerful fresh and waxy citrus.</td>
</tr>
<tr>
<td>Aldenal C - 10</td>
<td>Blend of powerful, fresh citrus odor.</td>
</tr>
<tr>
<td>Alpha Terpinene</td>
<td>Refreshing lemony citrusy odor.</td>
</tr>
<tr>
<td>Auralva</td>
<td>Neroli orange, muguet, grape odored schiff's base.</td>
</tr>
<tr>
<td>Bergamal</td>
<td>Refreshing, aldehydic lemon, petitgrain note.</td>
</tr>
<tr>
<td>Product</td>
<td>Description</td>
</tr>
<tr>
<td>------------------------------</td>
<td>---------------------------------------------------------------------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>Bergamot Augaflor 4</td>
<td>Characteristically bergamot, this compounded specialty has a fruity, woody, slightly sweet fragrance. Can be used up to 5% in many medias.</td>
</tr>
<tr>
<td>Bergamot Eco Essence</td>
<td>A sweet fruity odor typical of the bergamot orange.</td>
</tr>
<tr>
<td>Bergamot FCC</td>
<td>Rich sweet fruity.</td>
</tr>
<tr>
<td>Bergamot Givco 104</td>
<td>This reconstitution is bergapten-free and has no phototoxic potential. This is a bergamot that replaces the essential oil with superior stability and performance in functional products.</td>
</tr>
<tr>
<td>Bergamot LCNP</td>
<td>Alternative to bergamot, low cost non phototoxic.</td>
</tr>
<tr>
<td>Bergamot NPT</td>
<td>Closely resembles odor of bergamot oil, non phototoxic.</td>
</tr>
<tr>
<td>Bergamot Oil Italian</td>
<td>A fresh odor of the delightful bergamot natural source is Italy.</td>
</tr>
<tr>
<td>Bergamot Oil Ivory Coast</td>
<td>Sweet fruity bergamot odor that smells right off the west coast of Africa.</td>
</tr>
<tr>
<td>Bergamot Oil Non Sensitizing</td>
<td>Characteristic of the natural oil with natural sensitizing components removed in our special distillation process.</td>
</tr>
<tr>
<td>Bergamot Oil Rectified</td>
<td>A natural bergamot oil fragrance rectified to enhance its effect in many different fragrance formulations.</td>
</tr>
<tr>
<td>Bergamot Oil Reconst.</td>
<td>Juicy, natural reconstitution.</td>
</tr>
<tr>
<td>Bergamot Super Oliffac</td>
<td>Low cost simulation of the bergamot note for general purposes.</td>
</tr>
<tr>
<td>Bergamot Terpeneless Extra</td>
<td>Extremely smooth dry and clean of sweet bergamot.</td>
</tr>
<tr>
<td>Bergamote 17.530 SA</td>
<td>Rich, sweet fruity initial odor with balsamic body and dry out.</td>
</tr>
<tr>
<td>Bergamyl Acetate</td>
<td>A sweet bergamot orange fragrance.</td>
</tr>
<tr>
<td>Beta Pinene Coeur</td>
<td>Pine, citrus, lime.</td>
</tr>
<tr>
<td>Bitter Orange NPT</td>
<td>Odor similar to the West Indies bitter orange oil free of phototoxicity.</td>
</tr>
</tbody>
</table>
### The Citrus Notes of Fragrance

<table>
<thead>
<tr>
<th>Fragrance</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bitter Orange Oil Cold Pressed</td>
<td>A citrusy orange type odor.</td>
</tr>
<tr>
<td>Bitter Orange Oil 5 Fold</td>
<td>Slightly bitter but yet fruity citrusy orange odor.</td>
</tr>
<tr>
<td>Bitter Orange Oliffac 301</td>
<td>Economical replacement for West Indies bitter orange oil dry citrus.</td>
</tr>
<tr>
<td>Cedrat Peel Oil</td>
<td>A citrus fruit that resembles the lemon in appearance.</td>
</tr>
<tr>
<td>Cedrat Petitgrain Oil</td>
<td>Oil obtained from the leaves and twigs of the sour orange.</td>
</tr>
<tr>
<td>Citracetal</td>
<td>Citrus like odor, close to citral in it's strength.</td>
</tr>
<tr>
<td>Citral</td>
<td>Powerful lemony fragrance.</td>
</tr>
<tr>
<td>Citral Di Ethyl Acetal</td>
<td>Fine, fresh, citrusy stable in alkalis, fresher then nitrile.</td>
</tr>
<tr>
<td>Citral Di Methyl Acetal</td>
<td>Has a milder but much more natural lemon odor than citral.</td>
</tr>
<tr>
<td>Citral Di Methyl Acetal Pure</td>
<td>Very pleasant, floral lemon note.</td>
</tr>
<tr>
<td>Citral Extra</td>
<td>Finest quality of citral.</td>
</tr>
<tr>
<td>Citral 700</td>
<td>Strong lemon odor suitable for chemical intermediate use.</td>
</tr>
<tr>
<td>Citral 750</td>
<td>Grade suitable for chemical intermediate use.</td>
</tr>
<tr>
<td>Citral 850</td>
<td>Clean, fresh citrus lemon odor.</td>
</tr>
<tr>
<td>Citral 900</td>
<td>Intermediate grade, citrus lemon odor.</td>
</tr>
<tr>
<td>Citral Residues</td>
<td>A verbana grassy sweet type odor very diffusive.</td>
</tr>
<tr>
<td>Citral Terpenes</td>
<td>Harsh citral lemon odor.</td>
</tr>
<tr>
<td>Citral X Lemon</td>
<td>Fresh, juicy lemon peel, with a sweet tangy nuance.</td>
</tr>
<tr>
<td>Citral X Litsea</td>
<td>Powerful, fresh top note, lemon.</td>
</tr>
<tr>
<td>Citralex</td>
<td>Fresh lemon, clean citrus odor resembling citral.</td>
</tr>
<tr>
<td>Citralva</td>
<td>Powerful oily green lemony fresh odor.</td>
</tr>
</tbody>
</table>
Citralva Plus  
Intense lemon character, non discoloring.

Citrathal  
Distinctive fresh lemon lime lasts one day.

Citrathanil ABQ7023  
Is more green floral and tenacious lemon then agrudor.

Citric Acid Amhydrus  
A crystalline acid with a pleasant acid taste.

Citrilys Givco 169  
A pleasant citrus accord which evokes freshly squeezed tangerine peel blended with floral marine notes, giving it an unusual sparkling zest. The fruity background enhances the composition's natural aspect. Extremely diffusive and long-lasting, it performs well in most functional product bases. Designed for use as a top and middle note, it gives freshness and volume to all citrus, floral and green accords.

Citrofuran AB5531  
Is a more lavandacious citrus complex containing rhubafuran.

Citronal  
Fruity.

Citron Leaf Rectified Oil  
Tree native to asia having lemon like fruit with aromatic rind.

Citronalva  
Citrus, lemon, aldehyde, metallic.

Citronama  
Intense orange, ginger, palmarosa with ozone muguet aspects.

Citronellal  
Powerful fresh green citrusy, slight woody odor.

Citropal  
Moderate citrus type odor.

Citrotone B  
Clean fresh fruit odor generally citrus, for all citrus types.

Citrus Base  
Strong odor to lemon peels similar to melissa oil.

Citrus Terpenes  
Based on d-Limonene this fresh citrusy fragrance is a perfumer's delight helping to create fresh fruit blends and bases.

Citryl Acetate  
Includes features of bergamot oil with delicate lemon top note.

Citryl Nitrile  
A very strong lemon form of citral not pleasant lemon odor.

Citryl Nitrile B - 1313  
Dry hay like, fresh lemon, citral note.
<table>
<thead>
<tr>
<th>Ingredient</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Clonal</td>
<td>Dry orange peel note for citrus, bergamot cologne types.</td>
</tr>
<tr>
<td>Decanol Natural</td>
<td>A diffusive natural orange, but not of great tenacity.</td>
</tr>
<tr>
<td>Decanal - 4 - Trans</td>
<td>Is an exceptionally strong and diffusive chemical. Used mainly as a top note ingredient, it produces a fresh, natural, citrus-like effect, imparting tremendous lift.</td>
</tr>
<tr>
<td>Di Hydro Linalool</td>
<td>Fresh floral citrusy.</td>
</tr>
<tr>
<td>Di Hydro Myrcenol</td>
<td>Powerful fresh lime like.</td>
</tr>
<tr>
<td>Di Hydro Myrcenyl Acetate</td>
<td>Sparkling, fresh lime, lavender lasts one hour.</td>
</tr>
<tr>
<td>Di Hydro Terpineol</td>
<td>Floral, citrus, lime pine.</td>
</tr>
<tr>
<td>Di Hydro Terpinyl Acetate</td>
<td>Fresh piney citrusy.</td>
</tr>
<tr>
<td>D ’ Limonene</td>
<td>Citrus orange.</td>
</tr>
<tr>
<td>Di Methyl Anthranilate</td>
<td>Heavy orange blossom mandarin peel odor.</td>
</tr>
<tr>
<td>Di Methyl Octenone</td>
<td>Can be used to great advantage in citrus accords where it underlines the natural bitterness of the fruit. Its combination with fresh notes is much appreciated for the diffusion that it brings to compositions. Its utilization with certain modern accords can give original and natural grapefruit character.</td>
</tr>
<tr>
<td>Dimetol</td>
<td>Powerful lime cologne like odor similar to di hydro myrcenol.</td>
</tr>
<tr>
<td>Di Myrcetol</td>
<td>Fresh citrus lime like odor.</td>
</tr>
<tr>
<td>Dipentene 122</td>
<td>Fresh and sweet citrusy lemon.</td>
</tr>
<tr>
<td>Elemi Essence</td>
<td>Fresh lemon like.</td>
</tr>
<tr>
<td>Elemi Oil</td>
<td>Fresh spicy lemon.</td>
</tr>
<tr>
<td>Elemi Resinoid</td>
<td>Fresh terpeney peppery lemon.</td>
</tr>
<tr>
<td>Ethyl Linalyl Acetate</td>
<td>Is softer, more floral, more bergamot and less lavender than Linalyl Acetate. It has an elegant, refreshing effect in floral bouquets.</td>
</tr>
</tbody>
</table>
Feuilles D ' Oranger Abs.  
Reconstituted feuilles d ' oranger.

Feuilles E ' Oranger Abs. Eau  
Floral odor of feuilles d ' oranger.

Gamma Terpenes  
Citrus odor.

Geraldehyde  
Intense aldehydic note with marine, floral and citrus moieties.

Geranonitrile  
Fruity green, lemon.

Gloria ABQ7022  
Is a more citrusy fantasy base with a musky dry down.

Grapefruit Oil 5 Fold  
Citrusy grapefruit slightly sweeter then grapefruit oil of Florida.

Grapefruit Oil of Florida  
Tangy, citrusy grapefruit nice and fresh.

Grapefruit Oil Nardenised  
A tingling, fresh deterpenised oil lasts several weeks.

Grapefruit Oil Terpenes  
Fresh citrusy rather sweet odor.

Grapefruit Base # 15794 B  
A typical odor of a very ripe grapefruit.

Grapefruit Body Fleurom  
Extremely powerful green grapefruit odor.

Grapefruitone  
Is a sweet fruity specialty with a grapefruit rind character.

Helioforte  
Schiff base, sweet fruity orange, methyl anthranilate.

Heliomet  
Schiff base, sweet fruity orange, methyl anthranilate.

2, 4 Hexadien 1 AL  
Fresh, spicy green, floral citrusy odor used as top note.

Hexadienal 2 Trans 4 Trans  
Green fruity aldehydic citrus use in melon, kiwi, tropical fruit.

Hypo-Lem  
Citrus, aldehydic lemon.

Iso Bornyl Cyclo Citral  
A citrus lemon fruit type odor.

Jonquille Jacinthe Abs.  
A moderate orange that is yellower and stronger then honey dew.

Khadija  
Musk, ambre, citrus oriental bouquet.
Leila Lilacs in full bloom spiced with a hint of bergamot. A romantic spring bouquet conjuring visions of victorian elegance and the Belle Epoque.

Lemarome N Extensively used for its lemon effect in cologne blends. Is also extremely useful in certain floral compositions where it imparts a unique natural freshness.

Lemon Basil Oil The citral content of 41% gives this oil a verbena like quality while the basil side is not very evident.

Lemon Essence HC Free A natural oil which has had terpene, and sequisterpenes removed.

Lemon Givco 112 This base is an imitation of natural lemon odour that in addition has excellent stability and substantivity in all kinds of finished products. This Givco was especially developed for difficult bases like H.D.L.D. and H.D.P.D. Has strong diffusion & good impact on wet laundry.

Lemongrass Oil Chinese Strong grassy lemon type.

Lemongrass Oil Cochin Otherwise known as East Indian lemongrass oil. The finest essential oils odor varies depending on content of citral and other components.

Lemongrass Oil Guatemala A very strong grassy lemon type.

Lemongrass Oil Indian Citral content lower then above, but at same time similar.

Lemongrass Oil Nardenised Lemon fresh, deterpenised oil lasts a few days.

Lemongrass Oil Rectified Appears more lemony and sweet less verbena.

Lemongrass Oil Terpeneless A verbena green grassy odor free from harsh terpenes.

Lemonile Is used in lemon, verbena and lime compositions where it imparts freshness and diffusion. This nitrile is an extremely powerful chemical and has excellent stability in alkaline media.

Lemon Isolate Is a natural distilled product with a fresh juicy tart lemon.

Lemon Juicy Fresh juicy lemon with a sweet citral terpeney nuance.

Lemon Oil Typical lemon and refreshing.
<table>
<thead>
<tr>
<th>Fragrance</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lemon Oil 5 Fold</td>
<td>Purer sweeter lemon.</td>
</tr>
<tr>
<td>Lemon Oil Italian</td>
<td>A lemon which is sweet and juicy from Italy.</td>
</tr>
<tr>
<td>Lemon Oil of California</td>
<td>Sweet juicy lemon.</td>
</tr>
<tr>
<td>Lemon Oil Reconstructed</td>
<td>A reconstituted fragrance closely resembling the essential oil.</td>
</tr>
<tr>
<td>Lemon Oil Spanish</td>
<td>Sweet, fruity odor of lemon, source Spain.</td>
</tr>
<tr>
<td>Lemon Oil Synthetic</td>
<td>Low cost reconstitution lasts one day.</td>
</tr>
<tr>
<td>Lemon Oil Washed</td>
<td>A slightly lighter and sweeter juicy lemon.</td>
</tr>
<tr>
<td>Lemon Petitgrain Oil</td>
<td>Strong fresh odor with a woody dry out.</td>
</tr>
<tr>
<td>Lemonrone Lemonrone</td>
<td>Powerful lemon fragrance very chemical like.</td>
</tr>
<tr>
<td>Lemon Terpenes</td>
<td>Mildly lemon.</td>
</tr>
<tr>
<td>Lemorale</td>
<td>Brisk fresh top note useful for lemon limes bergamot herbal.</td>
</tr>
<tr>
<td>Lemon 360</td>
<td>A slightly sweet fruity lemon odor.</td>
</tr>
<tr>
<td>Lemsyn</td>
<td>Synthetic citral.</td>
</tr>
<tr>
<td>Lime AB402</td>
<td>Sweet yet sharp lasts a few weeks.</td>
</tr>
<tr>
<td>Lime Blossom</td>
<td>The oil made from the flowers has a fresh green muguet lily like fragrance.</td>
</tr>
<tr>
<td></td>
<td>Can be used as a floralizer to create interesting effects in many blends.</td>
</tr>
<tr>
<td>Lime Exp. H C Free</td>
<td>A natural oil which has terpene and sequesterpene removed.</td>
</tr>
<tr>
<td>Lime Expressed NPT</td>
<td>Similar odor to the natural expressed oil free of phototoxic.</td>
</tr>
<tr>
<td>Lime Oil Distilled</td>
<td>A tart sour ball candy like lime odor, very sweet.</td>
</tr>
<tr>
<td>Lime Oil Distilled 4 Fold W.I.</td>
<td>A tart lime odor vacuum distilled for terpene removal.</td>
</tr>
<tr>
<td>Lime Oil # 410</td>
<td>Oily sweet fruity lime.</td>
</tr>
<tr>
<td>Lime Oil 4 Fold</td>
<td>Sweeter juicer resulting from vacuum distillation process.</td>
</tr>
</tbody>
</table>
The Citrus Notes of Fragrance

Lime Oil Expressed  A lime fragrance fresh from the peel very reminiscent.

Lime Oil Expressed 4 Fold W.I.  A fresh slightly tart peel like in sweetness lime odor.

Lime Oil Nardenised  Sweet, pure deterpine seed oil with petitgran character on dry out.

Lime Oil Reconstructed  A reconstituted oil closely resembling the odor of a lime.

Lime Oil Roses Type  Sweet, juicy, candy lime like with a fresh peel character.

Lime Terpenes  Lime.

Lime Oil Terpeneless  Lime oil with the terpenes removed.

Lime Oil Sequisterpeneless  Lime oil terpene free.

Lime Oxide  Adds freshness and intensity to perfumes designed for functional products. It is also a powerful citrus booster with excellent stability in many applications, including bleach.

Limetol  Is used where a lemon-woody note is desired. It also offers pine needle and lime nuances.

Limettal ABQ5701  Tingling, fresh floral aldehydic, long lasting.

Limettene  Very strong pleasant fresh citrus note.

Limonene - D  Fresh and light sweet citrussy odor resembles orange peel.

Limonene 130  Fresh hydrocarbon type lemon odor.

Limonene Tech.  Fresh clean citrus odor of the orange.

Linaloe Wood Essence  Floral rose citrus, soft and sweet.

Linalyl Acetate  Sweet floral fruity odor, bergamot, pear.

Linalyl Acetate Synthetic  Widely used for its typical bergamot freshness and lavender characteristic.

Linalyl Benzoate  Balsamic floral bergamot fruity odor.

Linalyl Butyrate  Heavy fruity sweet bergamot like.
<table>
<thead>
<tr>
<th>Compounds</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Linalyl Cinnimate</td>
<td>Mild and balsamic sweet.</td>
</tr>
<tr>
<td>Linalyl Formate</td>
<td>Fresh citrusy green bergamot like.</td>
</tr>
<tr>
<td>Linalyl Iso Butyrate</td>
<td>More floral less fruity then n butyrate.</td>
</tr>
<tr>
<td>Linalyl Propionate</td>
<td>Fruity floral fresh very sweet bergamot.</td>
</tr>
<tr>
<td>Litsea Cubeba Rectified Oil</td>
<td>Intense citrus fruity lemon like.</td>
</tr>
<tr>
<td>Litsea Cubeba Terpenes</td>
<td>Now as sweet as regular litsea cubeba.</td>
</tr>
<tr>
<td>Lolitol</td>
<td>Fresh floral muguet with citrus nuances.</td>
</tr>
<tr>
<td>Mandarin AB646</td>
<td>The juicy zest base is built around citrathal.</td>
</tr>
<tr>
<td>Mandarin Oliffac</td>
<td>Sweet characteristic citrus mandarin note.</td>
</tr>
<tr>
<td>Mandarinal</td>
<td>A powerful fresh citrus aldehydic mandarin orange.</td>
</tr>
<tr>
<td>Mandarinal 32.048 SA</td>
<td>Powerful, fresh citrus aldehydic note of mandarin.</td>
</tr>
<tr>
<td>Mandarin Ald. 10 Citrate</td>
<td>An aldehydic mandarin orange.</td>
</tr>
<tr>
<td>Mandarin Italian Select</td>
<td>Intensely sweet not very fresh orange odor.</td>
</tr>
<tr>
<td>Melissa Oil</td>
<td>Has a sweet fresh lemon like scent.</td>
</tr>
<tr>
<td>Melissa Resinoid</td>
<td>A herb obtained by distilling lemon oil over the herb.</td>
</tr>
<tr>
<td>Methanyl Acetate</td>
<td>Piney citrusy type odor.</td>
</tr>
<tr>
<td>Methyl Octyl Ketone</td>
<td>Powerful citrusy orange.</td>
</tr>
<tr>
<td>Mugol Extra</td>
<td>Soft woody, citrus lime note with floral aspects.</td>
</tr>
<tr>
<td>Myrcene</td>
<td>Refreshing almost citrussy.</td>
</tr>
<tr>
<td>Myrcenol 50</td>
<td>An excellent cologne note with a citrus lime quality.</td>
</tr>
<tr>
<td>Myrcenol Super</td>
<td>Fresh, citrus.</td>
</tr>
<tr>
<td>Ingredient</td>
<td>Description</td>
</tr>
<tr>
<td>----------------------------------</td>
<td>-----------------------------------------------------------------------------</td>
</tr>
<tr>
<td>Myrcenyl Acetate</td>
<td>Sweet citrus.</td>
</tr>
<tr>
<td>Nardoeste ABQ5031</td>
<td>Powerful, dry lemon peel note.</td>
</tr>
<tr>
<td>Neoproxen</td>
<td>Herbal, leafy, green citrus.</td>
</tr>
<tr>
<td>Neral Crude 88 %</td>
<td>Sweet floral citral lemony type fragrance.</td>
</tr>
<tr>
<td>Nerger Formate</td>
<td>Tangy, sweet citrusy, lime, lemon, bergamot odor.</td>
</tr>
<tr>
<td>Nerol Coeur</td>
<td>Moderately priced lemon verbena note dominating the rosy.</td>
</tr>
<tr>
<td>Nerol G</td>
<td>A powerful refreshing, clean lemon rose odor.</td>
</tr>
<tr>
<td>Neryl Geranyl Acetate</td>
<td>Citrus sweet floral.</td>
</tr>
<tr>
<td>Nonanal Di Methyl Acetal</td>
<td>Refreshing, citrus, floral green odor.</td>
</tr>
<tr>
<td>Nootkatone Purified</td>
<td>Citrus grapefruit odor.</td>
</tr>
<tr>
<td>Octacetal</td>
<td>Fresh, clean citrus character reminiscent of orange.</td>
</tr>
<tr>
<td>Orafleur</td>
<td>Powerful neroli, orange flower note, fresh and diffusive.</td>
</tr>
<tr>
<td>Orange Aldehyde</td>
<td>Powerful, dilution - sweet orange like, fatty odor.</td>
</tr>
<tr>
<td>Orange Carbinyl</td>
<td>Fruity orange.</td>
</tr>
<tr>
<td>Orange Carbonyls</td>
<td>Natural orange juice odor.</td>
</tr>
<tr>
<td>Orange Des Indes 68A817</td>
<td>A nice clean fresh orange odor with a discreet spicy note.</td>
</tr>
<tr>
<td>Orange Essence Oil</td>
<td>A natural oil free from terpene and sequesterpenes.</td>
</tr>
<tr>
<td>Orange Flavor Zing.</td>
<td>Green, fresh juicy sweet orange for juicy top notes in citrus blends.</td>
</tr>
<tr>
<td>Orange Flower Absolute</td>
<td>Has a very intensely floral, heavy and rich, warm, but also delicate and fresh, long lasting odor, closely resembling the odor of fresh bitter orange blossoms. Although this absolute certainly has notes in common with jasmin absolute, it has a much more versatile application as a floral fond when used at a comparatively low concentration. It shows a pleasant, but peculiar and characteristic, sweet herbaceous backnote, not unlike the one found in jasmin.</td>
</tr>
<tr>
<td>Fragrance</td>
<td>Description</td>
</tr>
<tr>
<td>-------------------------</td>
<td>-----------------------------------------------------------------------------</td>
</tr>
<tr>
<td>Orange Flower Bitter</td>
<td>Very intensely floral, heavy and rich, warm, but also delicate and fresh, long lasting odor, closely resembling the odor of fresh bitter orange blossoms.</td>
</tr>
<tr>
<td>Orange Flower Concrete</td>
<td>A dark, brownish or orange brown paste or soft mass. Its odor is extremely strong, floral, deep sweet, with a peculiar woody breadcrust like backnote and great tenacity in floral notes. In high dilution, it is strikingly reminiscent of the odor of fresh orange blossoms.</td>
</tr>
<tr>
<td>Orange Flower Ether</td>
<td>Citrus grapefruit note also reminiscent of bergamot orange.</td>
</tr>
<tr>
<td>Orange Guinea Oil</td>
<td>Sweet fruity, reminiscent of the orange peel.</td>
</tr>
<tr>
<td>Orange Isolate</td>
<td>Has odor of natural peel, juicy with a rich aldehydic tone.</td>
</tr>
<tr>
<td>O.J. Carbinyl STD</td>
<td>Very juicy with an orange top note.</td>
</tr>
<tr>
<td>O.J. Carbinyl VCV</td>
<td>Orange, source is most likely valencia oranges.</td>
</tr>
<tr>
<td>Orange Juice Extract Natural 4/10</td>
<td>Very characteristic of freshly squeezed oranges without the pulp or slight bitter taste that naturally occurs in the fresh fruit. Overall a delightful fragrance suitable for many different creative blends.</td>
</tr>
<tr>
<td>Orange Oil Bitter</td>
<td>Bright bitter odor of oranges.</td>
</tr>
<tr>
<td>Orange Oil California</td>
<td>Sweet orange peel like odor.</td>
</tr>
<tr>
<td>Orange Oil Distilled</td>
<td>Orange peel like slightly less sweet and juicy.</td>
</tr>
<tr>
<td>Orange Oil 5 Fold</td>
<td>A very weak orange peel like odor.</td>
</tr>
<tr>
<td>Orange Oil Fla. Mid Season</td>
<td>Fruity orange.</td>
</tr>
<tr>
<td>Orange Oil Guinea C.P.</td>
<td>Orange, source Guinea, a country located on the west coast of Africa.</td>
</tr>
<tr>
<td>Orange Oil Nardenised</td>
<td>A beautiful sweet, deterpenised oil.</td>
</tr>
<tr>
<td>Orange Residue</td>
<td>Orange peel type odor, however not sweet like california oranges.</td>
</tr>
<tr>
<td>Orange Oil Sweet</td>
<td>Sweet fruity odor of oranges.</td>
</tr>
<tr>
<td>Orange Terpenes</td>
<td>Sweet fruity orange.</td>
</tr>
</tbody>
</table>
The Citrus Notes of Fragrance

Orange Terpeneless  A nice light rich very smooth orange odor.
Orange Terpeneless  Sweet fruity orange peel like, very nice.
Orange Oil Terpeneless Special A  A sweet fruity very smooth orange soda like odor.
Orange Oil Terpeneless Extra  A delicately sweet orange peel odor reminiscent of orange preserves.
Orange Terpeneless X 5 Fold  A very weak pure orange odor.
Orange Oil Valencia  Orange, source valencia type florida oranges.
Orange Wax  A real orange peel like odor, neither sweet or juicy.
Oranger Crystals  Sweet and very tenacious orange blossom.
Oranger Guiena Essence  Sweet fruity and characteristic of orange peel.
Oranger Liquid  Sweet floral rather harsh orange blossom.
Ozonil  Very strong fruity reminiscent of nuances in orange and mandarin oil.
Pamplefleur  Citrus, grapefruit, floral vetivert.
Petitgrain Abs.  The best of petitgrain oil free of terpenic harsh by notes.
Petitgrain Bigarade Abs.  A beautiful product where the sulphur notes of petitgrain are muted. Has a green tea, citrus like woody note representing the essential oil to its finest.
Petitgrain Bigarade Oil  Pleasant fresh floral sweet odor.
Petitgrain Citronnier Oil  Distinct and pleasant, a fresh lemony floral woody odor.
Petitgrain Oil Moroc Sur Fleurs  Fresh floral citrus scent and a woody-herbaceous undertone.
Petitgrain Oil Mandarin  A fresh lemony floral woody odor extremely tenacious.
Petitgrain Oil Paraguay  Strong, bitter sweet, woody floral odor. The topnote is somewhat harsh, but it quickly gives way to a heavy and sweet bodynote of typical petitgrain character, bitter floral, with a sweet and slightly woody backnote. The dryout, which comes quickly since the odor of this oil is not very tenacious, is sweet and slightly woody floral. According to the age of the oil, there are wide variations in the topnote of its odor. Most often, the topnote smells like the topnote of
crude bois de rose oil, almost nutmeg like and warm spicy.

Petitgrain Oil S A  A fresh lemony floral woody odor.
Petitgrain Oil Terpeneless  Diffusive less bitter sweet floral woody odor.
Psuedo Linalyl Acetate  Citrus, bergamot floral lavender.
Rhodinol Augaflor 18  This crisp, citrusy type compound can implant an element of Lemon in a perfume. Gives the finished fragrance a freshness of smell, and touch much sought after.
Schiff Base  Ligantraal, green citrus, orange blossom best in 10% solution.
Sino Citral  Fresh citral lemony with a floral background.
Sinocitril ABQ4020  Powerful aldehydic floral which has an enhanced tangerine character.
Stymonile ABQ7020  Is a zesty citrusy, radiant, ozone fresh complex.
Tamarine Base 41.310  Very diffusive and natural note of the green mandarine.
Tangelo Oil  The fragrance is a cross between a grapefruit and a tangerine. They have become a popular fruit commercially, since they are larger than tangerines with less seeds. Altogether fresh and citrusy.
Tangerine Essence  Fruity, characteristic sweet tangy tangerine.
Tangerine Oil  Fresh sweet odor reminiscent of valencia oranges.
Tangerine Oil Florida  Fresh sweet odor of valencia oranges.
Tangerine Terpenes  Fresh sweet fruity odor of valencia oranges.
Tangerine Type Oil  Sweet tangy tangerine like reminiscent of the peel.
Tangeris Givco 212  A pleasant citrus accord that evokes freshly squeezed tangerine peel, blended with floral, marine notes that give it an unusual sparkling zest. The fruity background enhances the composition's natural aspect. Extremely diffusive and long-lasting, it performs well in most functional product bases. Designed for use as a top and middle note, it gives freshness and volume to all citrus, floral and green accords.
The Citrus Notes of Fragrance

<table>
<thead>
<tr>
<th>Fragrance</th>
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</tr>
</thead>
<tbody>
<tr>
<td>Terpinene Gamma</td>
<td>Terpeney, sweet, citrus with tropical and lime nuances.</td>
</tr>
<tr>
<td>Terpinyl Acetate Extra</td>
<td>Sweet slightly herbaceous of the bergamot lavender.</td>
</tr>
<tr>
<td>Terpinyl Acetate (CST)</td>
<td>Sweet, herbal, bergamot pure.</td>
</tr>
<tr>
<td>Terpinyl Acetate (GUM)</td>
<td>Sweet, herbal, bergamot lavender.</td>
</tr>
<tr>
<td>Tetra Hydro Mugol Coeur</td>
<td>Floral, citrus woody.</td>
</tr>
<tr>
<td>Tetra Hydro Myrcenol</td>
<td>Citrus, lime, sweet juicy.</td>
</tr>
<tr>
<td>Triplal</td>
<td>Powerful citrus green.</td>
</tr>
<tr>
<td>Triplal Extra</td>
<td>Green, citrus, herbal, aldehydic.</td>
</tr>
<tr>
<td>Unitene D</td>
<td>Piney lemony type odor.</td>
</tr>
<tr>
<td>Vandor B</td>
<td>Aldehydic, green, citrus fatty.</td>
</tr>
<tr>
<td>Vertocitral</td>
<td>Strong grassy green note, citric, somewhat herbal camphor like.</td>
</tr>
</tbody>
</table>
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