US 20080307696A1

(19) **United States**

(12) **Patent Application Publication**

WU et al.

(10) **Pub. No.: US 2008/0307696 A1**

(43) **Pub. Date: Dec. 18, 2008**

(54) **CANDLE COMPOSITION**

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(21) Appl. No.: **12/140,814**

(22) Filed: **Jun. 17, 2008**

(30) **Foreign Application Priority Data**

Jun. 18, 2007 (CA) 2593912

Publication Classification

(51) **Int. Cl.**
C10L 7/00 (2006.01)

(52) **U.S. Cl.** **44/275**

(57) **ABSTRACT**

A candle composition containing non-hydrogenated oil and at least one of long-chain hydrocarbon and long-chain hydrocarbon derivatives. A candle composition having non-hydrogenated oil and a solidifying amount of congealing reagent. A candle composition having paraffin, non-hydrogenated oil, and a solidifying amount of a congealing reagent comprising petrolatum, oxidized petrolatum, oxidized long-chain hydrocarbons, or modified hydrocarbons. A process for making a candle composition is also provided, the process comprising mixing together a non-hydrogenated oil and a congealing amount of a congealing reagent, heating mixture to a temperature of 75-90° C., preferably 75-80° C., then cooling the mixture and pouring into a container.

CANDLE COMPOSITION

FIELD OF THE INVENTION

[0001] This invention relates to candle compositions. In particular, this invention relates to candle compositions having non-hydrogenated oil and a process for making a candle composition having non-hydrogenated oil.

BACKGROUND OF THE INVENTION

[0002] Candles have been used for centuries as a source of light and for their aesthetic appeal.

[0003] Paraffin wax has been traditionally used in making candle wax, which conventionally comprises 80 to 100% paraffin wax. It comes in various grades and melting points, and is predominantly composed of fully saturated long chain hydrocarbons. Although it is widely used in the candle industry, paraffin wax has a long cooling rate and is subject to pitting and bubbles arising during the candle manufacturing process. Paraffin wax is also a petroleum by-product and is known to produce toxins, black soot and carcinogens. It would therefore be advantageous to eliminate or reduce the paraffin wax used in candles in favour of a "green" alternative, and especially in favour of vegetable derived raw materials and ingredients.

[0004] Some manufacturers in the candle industry have started using vegetable oil as a main ingredient of wax for candle production. Vegetable oil is usually liquid at room temperature, thus it needs to be modified so that it can turn into solid form wax at room temperature. One way of doing this is to hydrogenate the vegetable oil by adding hydrogen atoms to the double bonds of the fatty acid in the molecule of oil so as to increase the melting point of the triglyceride. The melting point rises as the oil is saturated and the double bonds eliminated. Another way to modify the liquid vegetable oil into solid form wax is to convert the unsaturated cis-fats into trans-unsaturated trans-fats. Unsaturated trans-fats have higher melting point and are in solid form at normal room temperature. Conversely, the unsaturated cis-fats usually have lower melting point and will be in liquid form even at or below 0° C. During the vegetable oil hydrogenation process, some of the cis-form triglyceride converts to tran-form at the high temperature and with the addition of the catalyst of Nickel or noble metal salts. The trans-form vegetable oil contributes partially to the solidifying of partially-hydrogenated vegetable oil (commercially called shortening).

[0005] The use of partially or wholly hydrogenated vegetable oil as the main ingredient of wax for candle production is advantageous because it is a solid at room temperature. However, the use of hydrogenated vegetable oil also has a number of disadvantages, including high consumption of energy during the hydrogenation process, and high costs for transportation, storage and handling because hydrogenated vegetable oil is solid at room temperature and can oxidize easily. If the hydrogenated oil is kept at high temperatures for a long period (2-3 weeks), it will usually darken and change colour. The transportion and storage costs and troubles are especially concerning during the cold winter since hydrogenated oil can easily solidify and thereby block pipes, thus causing logistical and production planning problems. The hydrogenation process also produces trans-fats, which might be a health concern when the candle/wax is used in thermotherapy. The trace residue of the catalysts (nickle or platinum) from the hydrogenation process is harmful to the metal equipments (wax storage container, tanks, pipes, etc.) and is also a health issue.

[0006] The main constituent of vegetable oil is triglyceride, which is essentially a glyceride in which the glycerol is esterified with three fatty acids. The chemical formula of triglyceride is $CH_2COOR—CHCOOR'—CH_2—COOR''$, wherein R, R' and R" are long alkyl chains and the three fatty acids RCOOH, R'COOH and R"COOH may all vary.

[0007] Vegetable oils which contain more unsaturated fatty acids remain in the liquid phase at temperatures at which saturated vegetable oils are solid. Unsaturated vegetable oils (and fatty acids) can be converted to saturated vegetable oils (and fatty acids) by hydrogenation, which involves the process of addition of diatomic hydrogen at high pressure and in the presence of catalysts which are very expensive and not environmentally friendly. The elimination of double bonds in the triglyceride by adding hydrogen atoms increases the degree of saturation, thereby raising the oil's melting point and viscosity.

[0008] Unsaturated vegetable oils usually stay in liquid form at a point between −18° C. and −5° C., depending on the type of oil, and have an Iodine value of 77-178. There is therefore a need to turn unsaturated liquid vegetable oils into a solid without using chemical processing, thereby allowing the mixture to be modified for candle production purposes. Such a candle would be easier to burn due to its low viscosity with suitable melting point and therefore has a safety advantage.

DETAILED DESCRIPTION OF THE INVENTION

[0009] The object of the present invention is to provide a way to solidify non-hydrogenated oils into a solid candle composition, without consuming significant energy and without using hydrogenation or converting unsaturated cis-fats into unsaturated trans-fats.

[0010] The present invention relates to candle compositions that have non-hydrogenated oil.

[0011] According to one aspect of the present invention, there is provided a candle composition comprising non-hydrogenated oil and long-chain hydrocarbons and/or long-chain hydrocarbon derivatives. For the purposes of the present invention, examples of long-chain hydrocarbons include beeswax, synthetic hydrocarbons, paraffin and petrolatum, as well as other long-chain hydrocarbons known to a person skilled in the art. The long-chain hydrocarbon derivative is preferably a wax with 20 or more carbon atoms, and even more preferably an oxidized paraffin wax, however other long-chain hydrocarbon derivatives may be used as known to a person skilled in the art.

[0012] According to another aspect of the present invention, a candle composition is provided having non-hydrogenated oil and a solidifying amount of congealing reagent. The congealing reagent solidifies the non-hydrogenated oil for use in candle compositions. The non-hydrogenated oils are preferably vegetable oils. For the purposes of the present invention, acceptable non-hydrogenated oils include soy oil, sunflower oil, corn oil, grape seed oil, olive oil, canola oil, safflower oil, sesame oil, almond oil, linseed oil, flax seed oil, and cottonseed oil. A person skilled in the art would understand that any non-hydrogenated oil may be used in the present invention.

[0013] According to another aspect of the present invention, a candle composition is provided having paraffin, non-

hydrogenated oil, and a solidifying amount of a congealing reagent. The congealing reagent is preferably a natural-based long chain ester, petrolatum, oxidized petrolatum, oxidized long-chain hydrocarbons, modified hydrocarbon derivatives, or beeswax.

[0014] The congealing reagent may also be long-chain hydrocarbon derivatives with functional groups such as hydroxyl (—OH), carboxyl (—COOH), acyl (RCO—), aldehyde (—CHO), phenzyl, cycloalkane on one or two ends; and/or long-chain hydrocarbon derivatives with at least one side chain which include functional groups such as hydroxyl (—OH), carboxyl (—COOH), acyl (RCO—), aldehyde (—CHO), phenzyl, alkanes or cycloalkanes. The congealing reagent may be natural-based long chain esters, high melting point petrolatum, oxidized petrolatum, oxidized long chain hydrocarbons, and/or modified hydrocarbon derivatives with side chain which containing functional group. Such long-chain hydrocarbon congealing reagents can strongly attract liquid triglyceride molecules (vegetable oil) and turn the liquid form vegetable oil into a creamy/solid substance. The further addition of congealing boosters such as high melting-point paraffin and high melting-point (highly saturated) fats/triglycerides will allow the formation of a uniform solid solution (wax base) which will remain solid at temperatures around 42° C. to 54° C., and thereby used in candle applications.

[0015] Preferably, the non-hydrogenated oil used in the embodiments of the present invention has an Iodine value in the range of 77-178, and preferably has a melting point of at least −5° C. or lower.

[0016] The non-hydrogenated oils of the present invention may be vegetable oils, preferably wherein 20% to 78% of the fatty acids of the triglyceride composition is linoleic acid. The candle composition may contain about 1%-95% non-hydrogenated oil.

[0017] According to another aspect of the present invention, there is provided a candle composition having non-hydrogenated oil, hydrocarbon or paraffin wax, congealing reagent. A further aspect of the present invention provides a candle composition having non-hydrogenated oil, hydrocarbon or paraffin wax, congealing reagent, and a polymer.

[0018] The congealing reagent is preferably s natural-based long chain esters, petrolatum (more preferably, high-melting point petrolatum), oxidized petrolatum, long-chain hydrocarbon derivatives (preferably oxidized), or modified hydrocarbons, preferably with side chain containing functional groups. The polymer functions as a sweat controlling reagent and is usually added for high-load fragrance jar candlers. The polymer used may include Polyboost 165, Polyboost 130 (from S.S. Chemical), Vybar 260 (from Baker Hughes).

[0019] A preservative may also be added since a high percentage of food grade ingredients of wax can be easily contaminated.

[0020] According to a further aspect of present invention, a candle composition is provided having 1%-95% by weight non-hydrogenated vegetable oil, may contain 0-65% synthesis hydrocarbon or paraffin wax, 1-20% congealing reagent, and preferably at least one of 0-1.5% of polymer. The congealing reagent of a preferred embodiment of this invention preferably includes the natural-based long chain esters, a high melting point petrolatum, oxidized petrolatum, oxidized long chain hydrocarbons, and/or modified hydrocarbon derivatives with side chain containing functional groups of hydroxyl (—OH), carboxyl (—COOH), acyl (RCO—), aldehyde (—CHO), phenzyl, alkanes or cycloalkanes.

[0021] According to another embodiment of the present invention, there is provided a process for making a candle composition. The process includes combining a non-hydrogenated oil and a congealing amount of a congealing reagent and heating the mixture to a temperature of 80-90° C. The mixture is stirred until completely melted and the melted mixture is brought to a temperature of 75-80° C. The mixture is then cooled and poured into a candle container. Preferred non-hydrogenated oils for the purposes of the invention include non-hydrogenated vegetable oils as described above, and which preferably have an iodine value of 77-178 and a melting point of at least −5° C. or lower.

[0022] A further embodiment of the present invention provides a process for making a candle composition comprising the steps of combining non-hydrogenated oil, hydrocarbon or paraffin wax, a congealing reagent, and preferably a polymer. The mixture is heated to 80-90° C., and stirred together until completely melted and the melted mixture is brought to a temperature of 75-80° C. The mixture is then cooled and poured into a candle container.

[0023] The following are examples of a preferred embodiment of the present invention, without limiting its scope as defined by the claims.

EXAMPLE 1

[0024] This example is a candle composition formed mainly from olive oil and 100% natural ingredients. The ingredients are:

[0025] Cool pressed pure extra virgin olive oil: 64%

[0026] Palm wax: 30%

[0027] Beeswax: 6%

[0028] Step 1: To make this candle, these three ingredients (olive oil, palm wax, and beeswax) are weighed and placed into a batch tank.

[0029] Step 2: Heat the batch tank in a hot wax bath (or a hot water bath) at a temperature of 80-90° C. Alternatively, one could melt the beewax first at a high temperature, and then bring the temperature to 80-90° C. and add the remaining ingredients. Stir all ingredients until completely melted and set the melted mixture to 75-80° C. The mixture will be a dark green colour. It is important to prevent the mixture from reaching temperatures greater than 90° C. or from being heated continuously for 10 hrs or longer.

[0030] Step 3: Prepare the candle container with wick and wick sustainer if needed (the size and type of wick may depend on the size of the candle). Heat the container to about 40° C. (using a heating element) and pour the proper amount of melted mixture into the candle container.

[0031] Step 4: Cool candle with fan for about 30-120 minutes (depending on the size of the candle and the cooling temperature).

[0032] Step 5: Fix the wick so that wick is in the center

[0033] Step 6: Heat the candle surface to ensure it is flat and cosmetically appealing. Step 7: Let candle completely cool without fan for another 30-120 minutes (depending on the size of the candle and the cooling temperature).

[0034] Step 8: Clean up the outside part of the candle, apply labels, tags and lid/cover.

[0035] Step 9: Store the candle at normal room temperature (15-35 C). Avoid extreme cold and hot temperature.

EXAMPLE 2

[0036] This example is a candle composition formed mainly from olive oil and paraffin blend. The ingredients are:

[0037] Cool pressed pure extra virgin olive oil: 82%

[0038] Fully refined paraffin: 10%

[0039] High melting point petrolatum: 7%

[0040] Polyboost 165: 1%

[0041] Step 1: Place all ingredients into a batch container or tank.

[0042] Step 2: Heat the batch tank in the hot wax bath at the temperature of 80-90° C. Stir until all ingredients are melted and set the mixture to reach a temperature of 75-80° C. The temperature of the mixture should not go above 90° C. or be heated for 10 hrs or longer.

[0043] Step 3: Prepare the candle container with wick and wick sustainer if needed (the size and type of wick may depend on the size of the candle). Heat the container to about 40° C. (using a heating element), then pour the proper amount of melted mixture into the candle container.

[0044] Step 4: Cool candle with fans for about 30-120 minutes (depending on the size of the candle and the cooling temperature).

[0045] Step 5: Fix the wick to ensure wick is in centre of candle

[0046] Step 6: Heat the candle surface to ensure it is flat. One could also refill the ensure the candle surface is flat.

[0047] Step 7: Let candle completely cool with or without fan for another 30-120 minutes (depending on the size of the candle and the cooling temperature).

[0048] Step 8: Clean up the outside part of the candle, apply labels, tags and lid/cover.

[0049] Step 9: Store the candle in normal room temperature (15-35° C.). Avoid extreme cold and hot temperatures.

EXAMPLE 3

[0050] This example is a candle composition formed mainly from grape seed oil and synthetic hydrocarbon blend. The ingredients are:

[0051] Pure grape seed oil: 66.5%

[0052] EP858 Synthetic hydrocarbon: 28%

[0053] High melting point petrolatum: 5%

[0054] Polyboost 165: 0.5%

[0055] Step 1: Place appropriate portions of ingredients into batch tank.

[0056] Step 2: Heat the batch tank in a hot wax bath at a temperature of 80-90° C. Stir until all ingredients are melted and let the mixture reach a temperature of 75-80° C. The temperature of the mixture should not go above 90° C. or be heated for 10 hrs or longer.

[0057] Step 3: Prepare the candle container with wick and wick sustainer if needed (the size and type of wick may depend on the size of the candle). Heat the container to about 40° C. if the candle container is clear glass (for the frost jar and non-transparent container, not need to heat before pouring), then pour the proper amount of melted mixture into the candle container.

[0058] Step 4: Cool candle with fans for about 30-120 minutes (depending on the size of the candle and the cooling temperature).

[0059] Step 5: Fix the wick to ensure wick is in center of candle.

[0060] Step 6: Heat the candle surface to ensure the composition is flat, and if needed apply a second fill to ensure flat surface.

[0061] Step 7: Let candle completely cool with or without fan for another 30-120 minutes (depending on the size of the candle and the cooling temperature).

[0062] Step 8: Clean up the outside part of the candle, apply labels, tags and lid/cover.

[0063] Step 9: Store the candle in normal room temperature (15-35° C.). Avoid extreme cold and hot temperatures.

EXAMPLE 4

[0064] This example is a candle composition formed mainly from soybean oil and hydrocarbon blend. The ingredients are:

[0065] Degummed soybean oil: 55%

[0066] Synthesis hydrocarbon: 40%

[0067] High melting point petrolatum: 5%

[0068] Step 1: Place the appropriate portions of all the ingredients into a batch tank.

[0069] Step 2: Heat the batch tank in a hot wax bath at a temperature of 80-90° C., stir until all ingredients melt and the mixture reaches a temperature of 75-80° C. The temperature of the mixture should not go above 90° C. or be heated for 10 hrs or longer. The colour of the mixture will be a light brown, however organic dyes can be added to change the colour. In addition, fragrances can also be added.

[0070] Step 3: Prepare the candle container with wick and wick sustainer if needed (the size and type of wick may depend on the size of the candle). Heat the container to about 40° C. if the candle container is clear glass (for the frost jar and non-transparent container, it is not necessary to heat the container before pouring the mixture), then pour the proper amount of the melted mixture into the candle container.

[0071] Step 4: Cool candle with fans for about 30-120 minutes (depending on the size of the candle and the cooling temperature).

[0072] Step 5: Fix the wick to ensure it is in the center of the candle.

[0073] Step 6: Heat the candle surface to ensure it is flat or apply a 2^{nd} fill when the temperature is 40° C. and lower.

[0074] Step 7: Let candle cool with or without fan for another 30-120 minutes (depending on the size of the candle and the cooling temperature).

[0075] Step 8: Clean up the outside part of the candle, apply labels, tags and lid/cover.

[0076] Step 9: Store the candle in normal room temperature (15-35° C.). Avoid extreme cold and hot temperatures.

EXAMPLE 5

[0077] This example is a candle composition formed mainly from canola oil, palm fat and paraffin blend. The ingredients are:

[0078] Canola oil: 43.5%

[0079] Palm fat (powder): 18%

[0080] Lower melting point paraffin: 33%

[0081] High melting point petrolatum: 5%

[0082] Polyboost 165: 0.5%

[0083] Step 1: Place the appropriate portions of all the above ingredients into a batch tank.

[0084] Step 2: Heat the batch tank in the hot wax bath at a temperature of 80-90° C., stir until all ingredients melt and the mixture reaches to 75-80° C. The temperature of the mixture should not go above 90° C. or be heated for 10 hrs or longer. Fragrances and colour dyes may be added.

[0085] Step 3: Prepare the candle container with wick and wick sustainer if needed (the size and type of wick may depend on the size of the candle). Heat the container to about 40° C. if the candle container is clear glass (frost jars and non-transparent containers need not be heated prior to pouring), then pour the proper amount of the melted mixture into the candle container.

[0086] Step 4: Cool candle with fans for about 30-120 minutes (depending on the size of the candle and the cooling temperature).

[0087] Step 5: Fix the wick to ensure it is in the center of the candle.

[0088] Step 6: Heat the candle surface to ensure it is flat or apply a 2^{nd} fill when the temperature is 40° C. and lower.

[0089] Step 7: Let candle cool with or without fan for about 30-60 minutes (depending on the size of the candle and the cooling temperature).

[0090] Step 8: Clean up the outside part of the candle, apply labels, tags and lid/cover.

[0091] Step 9: Store the candle in normal room temperature (15-35° C.). Avoid extreme cold and hot temperatures.

EXAMPLE 6

[0092] This example is a candle composition mainly having sunflower seed oil and paraffin blend. The ingredients are:

[0093] Pure sunflower seed oil: 57%

[0094] Fully refined paraffin: 38%

[0095] High melting point petrolatum: 5%

[0096] Step 1: Place the appropriate portions of all the above ingredients into a batch tank.

[0097] Step 2: Heat the batch tank in a hot wax bath to a temperature of 80-90° C., stir until all ingredients melt and the mixture reaches to 75-80° C. The temperature of the mixture should not go above 90° C. or be heated for 10 hrs or longer. Fragrances and colour dyes may be added.

[0098] Step 3: Prepare the candle container with wick and wick sustainer if needed (the size and type of wick may depend on the size of the candle). Heat the container to about 40° C. if the candle container is clear glass (frost jars and non-transparent container need not be heated before pouring), then pour the proper amount of the melted mixture into the candle container.

[0099] Step 4: Cool candle with fans for about 30-120 minutes (depending on the size of the candle and the cooling temperature).

[0100] Step 5: Fix the wick to ensure it is at the center of the candle.

[0101] Step 6: Heat the candle surface to ensure it is flat or apply a 2^{nd} fill when the temperature is 40° C. and lower.

[0102] Step 7: Let candle cool with or without fan for about 30-60 minutes (depending on the size of the candle and the cooling temperature).

[0103] Step 8: Clean up the outside part of the candle, apply labels, tags and lid/cover.

[0104] Step 9: Store the candle in normal room temperature (15-35° C.). Avoid extreme cold and hot temperatures.

EXAMPLE 7

[0105] This example is a candle composition mainly having safflower seed oil and synthetic hydrocarbon blend. The ingredients are:

[0106] Pure safflower oil: 59.5%

[0107] EP858 synthetic hydrocarbon: 35%

[0108] High melting point petrolatum: 5%

[0109] Polyboost 165: 0.5%

[0110] Step 1: Place the appropriate portions of all the above ingredients into a batch tank.

[0111] Step 2: Heat the batch tank in a hot wax bath to a temperature of 80-90° C., stir until all the ingredients melt and the mixture reach 75-80° C. The temperature of the mixture should not go above 90° C. or be heated for 10 hrs or longer. Fragrances and colour dyes may be added.

[0112] Step 3: Prepare the candle container with wick and wick sustainer if need (the size and type of wick may depend on the size of the candle). Heat the container to about 40° C. if the candle container is clear glass (frost jars and non-transparent containers need not be heated prior to pouring), then pour the proper amount of melt wax into the candle container.

[0113] Step 4: Cool candle with fans for about 30-120 minutes (depending on the size of the candle and the cooling temperature).

[0114] Step 5: Fix the wick to ensure it is in the center of the candle.

[0115] Step 6: Heat the candle surface to ensure it is flat or apply a 2^{nd} fill when the temperature is 40° C. and lower.

[0116] Step 7: Let candle cool with or without fan for about 30-60 minutes (depending on the size of the candle and the cooling temperature).

[0117] Step 8: Clean up the outside part of the candle, apply labels, tags and lid/cover.

[0118] Step 9: Store the candle in normal room temperature (15-35° C.). Avoid extreme cold and hot temperatures.

EXAMPLE 8

[0119] This example is a composition for a citronella patio candle, and is mainly composed of recycle liquid oil from fast food restaurants and paraffin wax blend. The ingredients are:

[0120] Recycled liquid form oil from fast food restaurant: 60%

[0121] Saturated Tallow: 14%

[0122] High melting paraffin wax: 20%

[0123] High melting point petrolatum: 1%

[0124] Citronella fragrance oil: 5%

[0125] Step 1: Place the appropriate portions of all the above ingredients, except the citronella fragrance oil, into a batch tank.

[0126] Step 2: Heat the batch tank in the hot wax bath in the temperature of 80-90° C., stir until all ingredients melt and the mixture reaches a temperature of 75-80° C. The temperature of the mixture should not go above 90° C. or be heated for 10 hrs or longer. Add citronella fragrance oil and any colour dyes, if necessary.

[0127] Step 3: Prepare the citronella patio candle bucket and pour the proper amount of melted mixture into the candle bucket.

[0128] Step 4: Cool candle with fans for about 60-120 minutes (depending on the size of the candle and the cooling temperature).

[0129] Step 5: Insert the wick and ensure it is in the center.

[0130] Step 6: Apply a 2^{nd} fill when the temperature of the candle is 40° C. or lower, if required to ensure candle surface is flat.

[0131] Step 7: Let candle cool with or without fan for another 60-90 minutes (depending on the size of the candle and the cooling temperature).

[0132] Step 8: Clean up the outside part of the candle, apply labels, tags and lid/cover.

[0133] Step 9: Store the candle in normal room temperature (15-35° C.). Avoid extreme hot temperatures.

[0134] The candle composition of the present invention has the following advantages: 1) zero to low energy/materials wastage in solidifying liquid oil (compared with chemically hydrogenate method of solidifying unsaturated vegetable oil); 2) less trouble during transportation and production handling (reduces pipe blockage trouble in cold winter time, no need to waste energy to keep solid oil at high temperature, and prevents darkening of the oil due to oxidation at high storage temperature); 3) faster production speed: production output rate can be 2-3 times faster than high content paraffin wax candle; 4) candle with this kind of wax can be hot packed with less appearance defects of bubbling, pitting, frosting and cracking later; 5) heat/cool resisting test performance is good; 6) high fragrance loading capacity (up to 15%); 7) cold flow is very good; and 8) burn performance is very good—smaller wick with less soot—thus more environmental friendly; 9) nice delicate appearance that can be presented as high-end candle products.

[0135] The candle wax composition of this invention is consistently in hard solid form at and under 40° C., and can remain in hard solid form for more than 8 hrs at 45° C.

[0136] The wax composition has the characteristics of rapid and even congealing, less shrinking rate and high of fragrance loading capacity. It is preferable for thermotherapy and container candle. For example, the candle composition containing 80% wt. of cool pressed extra virgin olive oil, will posssess the original color and odor of olives. In another example, the candle composition contains 65% wt. grape seed oil, which have a high content of linoleic acid.

[0137] Various embodiments of the present invention having been thus described in details of example, it will be apparent to those skilled in the art that variations and modifications may be made without departing from the invention. The invention includes all such variations and modifications as fall within the scope of the appended claims.

What is claimed is:

1. A candle composition comprising non-hydrogenated oil and at least one of a long-chain hydrocarbon and a long-chain hydrocarbon derivative.

2. A candle composition of claim **1** wherein the long-chain hydrocarbon derivative is a wax with 20 or more carbon atoms, preferably oxidized paraffin wax.

3. A candle composition comprising non-hydrogenated oil and a solidifying amount of congealing reagent.

4. A candle composition comprising paraffin, non-hydrogenated oil, and a solidifying amount of a congealing reagent selected from the group consisting of petrolatum, oxidized petrolatum, oxidized long-chain hydrocarbons, modified hydrocarbons, and mixtures thereof.

5. A candle composition of any one of claims **3**-**4** wherein the congealing reagent is at least one of a natural-based long chain ester and a long-chain hydrocarbon derivative with functional groups, preferably such as hydroxyl (—OH), carboxyl (—COOH), acyl (RCO—), aldehyde (—CHO), phenzyl and/or cycloalkane on one or two ends, and more preferably the congealing regeant is a long-chain hydrocarbon derivative with at least one side chain including hydroxyl(—OH), carboxyl (—COOH), acyl (RCO—), aldehyde (—CHO), phenzyl, alkanes, or cycloalkanes.

6. A candle composition as defined in any one of claims **1** to **4** wherein the non-hydrogenated oil comprises vegetable oil, preferably where 20% to 78% of the fatty acids in the triglyceride composition is linoleic acid.

7. A candle composition as defined in any one of claims **1** to **4** comprising about 1%-95% non-hydrogenated oil.

8. A candle composition of any one of claims **1** to **4** wherein the non-hydrogenated oil has an iodine value in the range of 77-178, and preferably has a melting point of at least −5° C. or lower.

9. A candle composition comprising
non-hydrogenated vegetable oil,
hydrocarbon or paraffin wax,
a congealing reagent, preferably petrolatum, long-chain hydrocarbons, or a modified hydrocarbon derivative,
and preferably a polymer.

10. A candle composition comprising:
1-95% by weight non-hydrogenated vegetable oil,
0-65% hydrocarbon or paraffin wax,
1-20% congealing reagent, preferably natural-based long chain esters, petrolatum, oxidized petrolatum, oxidized long-chain hydrocarbons, or modified hydrocarbon derivatives preferably with side chain having some functional groups such as hydroxyl(—OH), carboxyl (—COOH), acyl (RCO—), aldehyde (—CHO), phenzyl, alkanes, or cycloalkanes,
and preferably 0-1.5% of polymer, preferably where the polymer comprises Polyboost.

11. A process for making a candle composition comprising
mixing together a non-hydrogenated oil and a congealing amount of a congealing reagent, heating mixture to a temperature of 75-90° C., preferably 75-80° C., cooling said mixture and pouring into a container.

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