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(71) **Applicant**: **GIVAUDAN SA** [CH/CH]; Chemin de la Parfumerie 5, 1214 Vernier (CH).

(72) **Inventors**: **BLONDEAU, Philippe**; 6, Place du Colonel Fabien, 75019 Paris (FR). **PICCI, Sebastien**; 22 Passage Joffre, 68260 Kingersheim (FR).

(74) **Agent**: **MCSTEA, John**; Givaudan SA, Ueberlandstrasse 138, 8600 Duebendorf (CH).

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(54) **Title**: LIQUID CLEANING COMPOSITIONS

(57) **Abstract**: A liquid cleaning composition is provided. The composition includes at least one surfactant; and a perfume mixture including (i) at least one isoparaffin oil; and (ii) at least one fragrance ingredient. The oil and fragrance ingredient mixture has a percentage ratio of from about 0.1 to about 2.0.

LIQUID CLEANING COMPOSITIONS

FIELD OF THE INVENTION

The present disclosure relates to liquid cleaning compositions. More particularly, the present disclosure relates to liquid hand dishwashing compositions having certain fragrance ingredients that improve low temperature stability.

BACKGROUND OF THE INVENTION

Consumers desire hand dishwashing products that deliver both a pleasant fragrance experience and cleaning efficacy. Surfactants used in liquid hand dishwashing compositions include surfactants derived from non-renewable resources, especially petroleum, and renewable resources. Thus, the price and availability of the petroleum and renewable feedstock ultimately has a significant impact on the price of hand dishwashing products which utilize materials derived from petroleum and from renewable resources.

As a result, producers of hand dishwashing products may lower the total surfactant level of the liquid hand dishwashing composition or use cheaper and/or less effective surfactants. This approach has a number of disadvantages. First, the cleaning efficacy of the hand dishwashing products is reduced. Second, as the level of surfactants is reduced, the formulations become more sensitive to the presence of fragrance ingredients. As a result, the temperature below which fragrance ingredients are soluble increases and the hand dishwashing products become cloudy, which makes the hand dishwashing products unattractive to consumers.

Accordingly, it would be desirable to provide liquid hand dishwashing compositions that deliver fragrance in an acceptable manner and good cleaning efficacy, while having excellent low temperature storage stability.

SUMMARY OF THE INVENTION

In one embodiment, a liquid cleaning composition includes at least one surfactant; and a perfume mixture including (i) at least one isoparaffin oil; and (ii) at least one fragrance ingredient. The oil and fragrance ingredient mixture has a percentage ratio of from about 0.1 to about 2.0.

In another embodiment, a liquid cleaning composition includes at least one surfactant; at least one organic solvent; and a perfume mixture including (i) at least one isoparaffin oil; and (ii)

at least one fragrance ingredient; wherein the oil includes greater than or equal to about 50% branched hydrocarbons.

In yet another embodiment, a liquid hand dishwashing product includes a composition including (i) at least one surfactant; (ii) at least one organic solvent; and (iii) a perfume mixture including at least one isoparaffin oil, and at least one fragrance ingredient; and a container including a dispensing orifice. The oil and fragrance ingredient mixture has a percentage ratio of from about 0.1 to about 2.0.

These and other features, aspects and advantages of specific embodiments will become evident to those skilled in the art from a reading of the present disclosure.

DETAILED DESCRIPTION OF THE INVENTION

The following text sets forth a broad description of numerous different embodiments of the present disclosure. The description is to be construed as exemplary only and does not describe every possible embodiment since describing every possible embodiment would be impractical, if not impossible. It will be understood that any feature, characteristic, component, composition, ingredient, product, step or methodology described herein can be deleted, combined with or substituted for, in whole or part, any other feature, characteristic, component, composition, ingredient, product, step or methodology described herein. Numerous alternative embodiments could be implemented, using either current technology or technology developed after the filing date of this patent, which would still fall within the scope of the claims. All publications and patents cited herein are incorporated herein by reference.

Liquid Cleaning Composition

The present disclosure relates to liquid cleaning compositions, and especially liquid dish washing compositions, including, *inter alia,* surfactants and perfume ingredients having improved low temperature stability. The compositions according to the present disclosure include specific solvents that lower the so-called Krafft point of the compositions.

"Krafft point" refers to the point where a surfactant composition turns turbid when decreasing the temperature and is physically associated to a change of the aggregation state of surfactants present in the composition. In particular, at the Krafft point, the hydrated surfactant solidifies and its solubility in the composition drops dramatically. Cleaning compositions below the Krafft point are much less efficient in terms of cleaning power and their turbidity is aesthetically not acceptable. The Krafft point is usually assessed by visual inspection.

Alternatively, turbidimetry can also be used, which allows a quantitative measurement of the transparency of composition. Typically, a turbidity measurement according to ISO 7027 method involves measuring the intensity of scattered infrared light at 90 degrees with respect to the incident light beam. Under such conditions, the result is expressed in Formazin Nephelometric Unit (FNU), which is almost equivalent to the Nephelometric Turbidity Unit (NTU) measured with white light. The NTU unit is generally used, disregarding whether the turbidity has been measured with infrared or white light. Compositions having turbidity lower than 20 NTU is considered as transparent in the context of the present disclosure.

One major issue encountered when adding certain fragrance oils to liquid cleaning compositions comprising high levels of anionic surfactants, and especially to dish washing compositions, is a marked increase of the Krafft point of the composition to unacceptable values, such as 10 °C or more, or 15 °C or more and even 20 °C or more. Liquid cleaning compositions that are designed to be water clear products under usual conditions of use and that become turbid or opaque at such temperatures are not acceptable and rejected by consumers. Furthermore, when liquid cleaning compositions are cooled down below their Krafft point, these compositions become more viscous and more difficult to poor or expel out of the packaging. This is also not acceptable. These issues have forced perfumers to limit or even to get rid of certain perfumery ingredients, thereby limiting their palette and creation possibilities. This issue becomes even more problematic when high levels of anionic surfactants having linear alkyl chains, such as those anionic surfactants having a polar group located at the end of the linear alkyl chain, for example para-(1-alkyl) benzene sulfonate, are present in the liquid cleaning composition.

According to the present disclosure, liquid cleaning compositions include at least one surfactant and a perfume mixture. In one embodiment, the perfume mixture may include at least one fragrance ingredient and at least one isoparaffin oil. The liquid cleaning compositions may also contain additional optional ingredients for particular applications. Suitable optional ingredients may include organic solvents; cleaning polymers; enzymes; humectants; salts; solvents; hydrotropes; polymeric suds stabilizers; diamines; pearlescent agent chelants; pH buffering agents; dyes; opacifiers; and mixtures thereof.

According to one embodiment, the liquid cleaning composition may have any suitable pH. In one embodiment, the pH of the composition has a pH of from about 3 to about 11; in another embodiment the pH may be from about 6 to about 10; and in yet another embodiment the pH may be from about 7 to about 9.

The liquid cleaning composition of the present disclosure may be used in a wide variety of applications and are not restricted to any particular physical mode or product form. According to the present disclosure, one example of a consumer product includes liquid hand dishwashing products. Although, the embodiments described herein in detail are directed towards liquid hand dishwashing products, the disclosure is applicable to various product forms, such as for example, liquid, semi-liquid, cream, lotion or gel compositions for use as liquid laundry detergents; liquid hard surface cleaners, shower gels, shampoos, ethanol-free fine fragrances, body mists and the like.

Surfactants

The liquid cleaning compositions according to the present disclosure includes at least one surfactant suitable for application to dishware, skin or fabrics. Suitable surfactants for use herein include any known or otherwise effective cleansing surfactant suitable for application to the skin, and which is otherwise compatible with the other ingredients of the liquid cleaning compositions. These surfactants may include anionic, nonionic, cationic, zwitterionic or amphoteric surfactants, or combinations thereof.

The liquid cleaning compositions include surfactant at concentrations ranging from about 1 to about 50%, in another embodiment from about 5 to about 45%, in another embodiment from about 8 to about 40%, and in yet another embodiment from about 12 to about 35% by weight of the liquid cleaning composition. Non-limiting examples of surfactants are discussed below.

Anionic Surfactant

In one embodiment, the liquid cleaning composition includes an anionic surfactant. Suitable anionic surfactants to be used in the compositions are sulfates, sulfonates, sulfosuccinates and/or sulfoacetates; for example, alkyl sulfates and/or alkyl ethoxy sulfates. Suitable sulphate surfactants may include water-soluble salts or acids of $C_{10} - C_{14}$ alkyl or hydroxyalkyl, sulphate and/or ether sulfate. Suitable counterions include hydrogen, alkali metal cation or ammonium or substituted ammonium, for example sodium. The hydrocarbyl chain might be linear or branched. Where the hydrocarbyl chain is branched, it may include C_{1-4} alkyl branching units. Mixtures of anionic surfactants with different branching levels on the hydrocarbyl group might be applied. The average percentage branching of such a mixture of the sulphate surfactants may be greater than 20% of the total hydrocarbyl chains.

Other suitable anionic surfactants may include alkyl, for example, dialkyl, sulfosuccinates and/or sulfoacetate. The dialkyl sulfosuccinates may be a C_{6-15} linear or branched dialkyl sulfosuccinate. The alkyl moieties may be asymmetrical (i.e., different alkyl moieties) or symmetrical (i.e., the same alkyl moieties).

In another embodiment, suitable anionic surfactants include sulphonate surfactants. Those include water-soluble salts or acids of $C_{10} - C_{14}$ alkyl or hydroxyalkyl, sulphonates; $C_{11} - C_{18}$ alkyl benzene sulphonates (LAS), modified alkylbenzene sulphonate (MLAS); methyl ester sulphonate (MES); and alpha-olefin sulphonate (AOS). Those also may include the paraffin sulphonates, for example, monosulphonates and/or disulphonates, obtained by sulphonating paraffins of 10 to 20 carbon atoms. The sulfonate surfactant may also include the alkyl glyceryl sulphonate surfactants.

Amphoteric and zwitterionic Surfactants

Suitable amphoteric and zwitterionic surfactants include amine oxides and betaines. For example, amine oxides include alkyl dimethyl amine oxide or alkyl amino propyl dimethyl amine oxide and derivatives thereof. Amine oxides may have a linear or symmetrically or asymmetrically branched alkyl moiety. Typical linear amine oxides include water-soluble amine oxides containing one R1 C_{8-18} alkyl moiety and 2 R2 and R3 moieties selected from the group consisting of C_{1-3} alkyl groups and C_{1-3} hydroxyalkyl groups. In one embodiment, amine oxide is characterized by the formula R1 - N(R2)(R3) O wherein R 1 is a C_{8-18} alkyl and R 2 and R 3 are selected from the group consisting of methyl, ethyl, propyl, isopropyl, 2-hydroxethyl, 2-hydroxypropyl and 3-hydroxypropyl. The linear amine oxide surfactants in particular may include linear $C_{10} - C_{18}$ alkyl dimethyl amine oxides and linear $C_8 - C_{12}$ alkoxy ethyl dihydroxy ethyl amine oxides. In another embodiment, amine oxides include linear C_{10}, linear $C_{10} - C_{12}$, and linear $C_{12} - C_{14}$ alkyl dimethyl amine oxides. As used herein "symmetrically-branched" means that the amine oxide has one alkyl moiety having n_1 carbon atoms with one alkyl branch on the alkyl moiety having n_2 carbon atoms. The alkyl branch is located on the alpha or beta carbon from the nitrogen on the alkyl moiety. This type of branching for the amine oxide is also known in the art as an internal amine oxide. The total sum of n_1 and n_2 is from 10 to 24 carbon atoms, in another embodiment from 12 to 20, and in yet another embodiment from 10 to 16. The number of carbon atoms for the one alkyl moiety (n_1) should be approximately the same number of carbon atoms as the one alkyl branch (n_2) such that the one alkyl moiety and the one alkyl branch are symmetric. As used herein "symmetric" means that $| n_1 - n_2 |$ is less than or equal to 5, in another

embodiment 4, and in another embodiment from 0 to 4 carbon atoms in at least 50 wt%, of the symmetrically-branched amine oxides for use herein. When $| n_1 - n_2 |$ is greater than 5 the amine oxide is asymmetrically branched.

Other suitable surfactants include betaines such as alkyl betaines, alkylamidobetaine, amidazoliniumbetaine, sulfobetaine (INCI Sultaines) as well as the Phosphobetaine. Examples of suitable betaines and sulfobetaines are the following [designated in accordance with INCI]: Almondamidopropyl of betaines, Apricotam idopropyl betaines, Avocadamidopropyl of betaines, Babassuamidopropyl of betaines, Behenam idopropyl betaines, Behenyl of betaines, betaines, Canolam idopropyl betaines, Capryl/Capram idopropyl betaines, Carnitine, Cetyl of betaines, Cocamidoethyl of betaines, Cocam idopropyl betaines, Cocam idopropyl Hydroxysultaine, Coco betaines, Coco Hydroxysultaine, Coco/Oleam idopropyl betaines, Coco Sultaine, Decyl of betaines, Dihydroxyethyl Oleyl Glycinate, Dihydroxyethyl Soy Glycinate, Dihydroxyethyl Stearyl Glycinate, Dihydroxyethyl Tallow Glycinate, Dimethicone Propyl of PG-betaines, Erucam idopropyl Hydroxysultaine, Hydrogenated Tallow of betaines, Isostearam idopropyl betaines, Lauram idopropyl betaines, Lauryl of betaines, Lauryl Hydroxysultaine, Lauryl Sultaine, MiIkam idopropyl betaines, Minkamidopropyl of betaines, Myristam idopropyl betaines, Myristyl of betaines, Oleam idopropyl betaines, Oleam idopropyl Hydroxysultaine, Oleyl of betaines, Olivamidopropyl of betaines, Palmam idopropyl betaines, Palm itam idopropyl betaines, Palmitoyl Carnitine, Palm Kernelam idopropyl betaines, Polytetrafluoroethylene Acetoxypropyl of betaines, Ricinoleam idopropyl betaines, Sesam idopropyl betaines, Soyam idopropyl betaines, Stearam idopropyl betaines, Stearyl of betaines, Tallowam idopropyl betaines, Tallowam idopropyl Hydroxysultaine, Tallow of betaines, Tallow Dihydroxyethyl of betaines, Undecylenam idopropyl betaines and Wheat Germam idopropyl betaines.

Nonionic Surfactants

Suitable nonionic surfactants include the condensation products of aliphatic alcohols with from 1 to 25 moles of ethylene oxide. The alkyl chain of the aliphatic alcohol can either be straight or branched, primary or secondary, and generally contains from 8 to 22 carbon atoms. In one embodiment, condensation products of alcohols having an alkyl group containing from 10 to 18 carbon atoms may be used, in another embodiment from 10 to 15 carbon atoms with from 2 to 18 moles, of ethylene oxide per mole of alcohol.

Also suitable may be alkylpolyglycosides, alkylglycerol ethers and sorbitan esters. In another embodiment, nonionic surfactants may include fatty acid amide surfactants such as C_8 – C_{20} ammonia amides, monoethanolamides, diethanolamides, and isopropanolamides.

Cationic Surfactants

Suitable cationic surfactants may include quaternary ammonium surfactants. Suitable quaternary ammonium surfactants are selected from the group consisting of mono C_6 –C_{16}, N-alkyl or alkenyl ammonium surfactants, wherein the remaining N positions are substituted by methyl, hydroxyethyl or hydroxypropyl groups. Other cationic surfactants include alkyl benzalkonium halides and derivatives thereof. Another example cationic surfactant is an $C_6 – C_{18}$ alkyl or alkenyl ester of a quaternary ammonium alcohol, such as quaternary chlorine esters.

Organic solvents

The liquid cleaning compositions according to the present disclosure may comprise one or more organic solvents. The liquid cleaning compositions include organic solvents at concentrations ranging from about 0.01% to about 20%, in another embodiment from about 0.5% to about 18%, in another embodiment from about 1% to about 15%, and in yet another embodiment from about 2% to about 10% by weight of the liquid cleaning composition. Non-limiting examples of organic solvents are discussed below. These organic solvents may be used in conjunction with water, or they may be used without water.

Suitable solvents may be selected from the group consisting of C_4- C_{14}, in another embodiment C_6-C_{12}, in another embodiment C_8-C_{10} ethers and diethers, glycols, alkoxylated glycols, C_6-C_{16} glycol ethers, alkoxylated aromatic alcohols, aromatic alcohols, aliphatic branched alcohols, alkoxylated aliphatic branched alcohols, alkoxylated linear C_1-C_5 alcohols, linear C_1-C_5 alcohols, amines, halohydrocarbons, alkanolamines and mixtures thereof.

In one embodiment, suitable glycols to be used herein may be according to the formula HO-CR_1R_2-OH wherein R_1 and R_2 are independently H or a C_2-C_{10} saturated or unsaturated aliphatic hydrocarbon chain and/or cyclic. For example, glycols may be selected from dodecaneglycol and/or propanediol, and derivatives thereof such as bronopol (2-bromo-2-nitropropane-1,3-diol).

In one embodiment, suitable alkoxylated glycols to be used herein may be according to the formula R-(A)n-R_1-OH wherein R is H, OH, a linear or branched, saturated or unsaturated alkyl of from 1 to 20 carbon atoms, in another embodiment from 2 to 15 and in yet another

embodiment from 2 to 10, wherein R_1 is H or a linear saturated or unsaturated alkyl of from 1 to 20 carbon atoms, in another embodiment from 2 to 15 and in another embodiment from 2 to 10, and A is an alkoxy group, for example, ethoxy, methoxy, and/or propoxy and n is from 1 to 5, and in another embodiment 1 to 2. Examples of suitable alkoxylated glycols to be used herein are methoxy octadecanol and/or ethoxyethoxyethanol.

In one embodiment, suitable alkoxylated aromatic alcohols to be used herein may be according to the formula R-(A)n-OH wherein R is an alkyl substituted or non-alkyl substituted aryl group of from 1 to 20 carbon atoms, in another embodiment from 2 to 15 and in another embodiment from 2 to 10, wherein A is an alkoxy group, for example, butoxy, propoxy and/or ethoxy, and n is an integer of from 1 to 5, and in another embodiment 1 to 2. Examples of suitable alkoxylated aromatic alcohols are benzoxyethanol and/or benzoxypropanol.

In one embodiment, suitable aromatic alcohols to be used herein may be according to the formula R-OH wherein R is an alkyl substituted or non-alkyl substituted aryl group of from 1 to 20 carbon atoms, in another embodiment from 1 to 15 and more preferably from 1 to 10. For example a suitable aromatic alcohol to be used herein is benzyl alcohol.

In one embodiment, suitable alkoxylated aliphatic alcohols to be used herein may be according to the formula R-(A)n-OH wherein R is a linear or branched, saturated or unsaturated alkyl group of from 1 to 20 carbon atoms, in another embodiment from 2 to 15 and in another embodiment from 3 to 12, wherein A is an alkoxy group, for example, butoxy, propoxy and/or ethoxy, and n is an integer of from 1 to 5, in another embodiment 1 to 2. Examples of suitable alkoxylated aliphatic linear or branched alcohols are butoxy propoxy propanol (n-BPP), butoxyethanol, butoxypropanol (n-BP), ethoxyethanol, 1-methylpropoxyethanol, 2-methylbutoxyethanol, Hexyl glycol ether and Hexyl diglycolether or mixtures thereof.

In one embodiment, suitable aliphatic alcohols to be used herein may be according to the formula R-OH wherein R is a linear or branched, saturated or unsaturated alkyl group of from 1 to 20 carbon atoms, in another embodiment from 2 to 15 and in another embodiment from 5 to 12. Examples of suitable aliphatic alcohols are methanol, ethanol, propanol, isopropanol or mixtures thereof.

In one embodiment, suitable alkanolamines to be used herein include but are not limited to monoethanolamine, diethanolamine and triethanolamine.

Other suitable solvents include butyl diglycol ether (BDGE), hexandiols, butyltriglycol ether, teramilic alcohol and the like. BDGE is commercially available from BASF under the trade name Butyl CARBTTOL®. Alternatively also diamines can be used.

In one embodiment, the at least one organic solvent may be selected from the group consisting of butoxy propoxy propanol, butyl diglycol ether, benzyl alcohol, butoxypropanol, ethanol, methanol, isopropanol, hexandiols and mixtures thereof. In another embodiment, the at least one organic solvent may be selected from the group consisting of butoxy propoxy propanol, benzyl alcohol, butoxypropanol, ethanol, methanol, isopropanol and mixtures thereof.

In another embodiment, hydrotropes might also be applied alone or in combination with any of the organic solvents mentioned above, to exhibit their solvent action, in an effective amount, i.e. from about 0.01% to about 25%, alternatively from about 0.5% to about 20%, alternatively from about 1% to about 15%, alternatively from 2% to 10%, alternatively 3 to 6% by weight of the liquid cleaning composition. Examples of suitable hydrotropes for use herein include anionic-type hydrotropes, particularly sodium, potassium, and ammonium xylene sulfonate, sodium, potassium and ammonium toluene sulfonate, sodium potassium and ammonium cumene sulfonate, and mixtures thereof.

Perfume Mixture

According to the present disclosure, liquid cleaning compositions include at least one surfactant and a perfume mixture. In one embodiment, the perfume mixture may include at least one fragrance ingredient and at least one isoparaffin oil.

In one embodiment, the isoparaffin oil to fragrance ingredient percentage ratio in the liquid cleaning composition is between about 0.1 and about 2.0, in another embodiment between about 0.4 and about 1.5, and in yet another embodiment between about 0.6 and about 1.3.

Isoparaffin Oil

According to the present disclosure, the issue described hereinabove may be substantially resolved by adding isoparaffinic hydrocarbon oils to the liquid cleaning compositions. Isoparaffinic hydrocarbon oils, also known as lightly hydrogenated petroleum distillates, are complex mixtures of linear, branched and cyclic hydrocarbons with extremely low level of aromatic contaminants.

Suitable isoparaffinic hydrocarbon oils according to the present disclosure include, but are not limited to, C8-C9 Isoparaffin (Isopar® E, available from Exxon, CAS No. 70024-92-9); C8-C12 Isoparaffin (Shell Sol TS, available from Shell); C10-11 Isoparaffin (Isopar® G, available from Exxon, CAS No. 246538-75-0); C10-12 Isoparaffin (Shell Sol TD, available from Shell, CAS No. 68551-17-7); C11-C13 Isoparaffin (Isopar® L, available from Exxon, CAS No. 246538-78-3); C12-C14 Isoparaffin (Soltrol 170 Isoparaffin Solvent, available from CPC chem, CAS No. 68551-19-9); C11-C16 Isoparaffin (Isopar® M, available from Exxon, CAS Number: 64742-47-8); Isoparaffin C12-C20 (Isopar® V Solvent, available from Exxon); and the like. For a more comprehensive list of isoparaffinic hydrocarbon oils and their properties, see "Wilbur Johnson, Jr. Green Book 5 of the Cosmetic Ingredient Review (CIR) Expert Panel, Augus 30-31, 2010", which is incorporated herein.

Isoparaffinic oils generally comprise high levels of branched hydrocarbons. For example, Isopar C consists of approximately 85 wt% isooctane, Isopar® L contains about 85 wt% of branched hydrocarbons and Isopar® M contains about 84 wt% branched hydrocarbons. The Isopar range contains also between 6 and 15 wt% of cyclic alkanes, typically C6 with varying degrees of branching, and less than 1 – 2 wt% of aromatic contaminants. Isooctane (CAS No. 540-84-1); isododecane (CAS No. 141-70-8); isoeicosane (CAS No. 52845-07-5) and Isohexadecane (CAS No. 4390-04-9) are also considered as isoparaffinic hydrocarbon oils.

A surprising result of adding hydrocarbon oils having high levels of branched hydrocarbons in compositions comprising both anionic surfactants and perfume ingredients is that low temperature stabilization of the composition is achieved without hampering the high temperature stability of said composition. In other words, the composition remains transparent and does not display any cloud point of phase separation in the temperature range from above the Krafft point to about 50 °C. Surprisingly, adding hydrocarbon oils having high levels of branched hydrocarbons broaden the surfactant solubility region of the phase diagram of the composition.

In accordance with a one embodiment, the level of branched hydrocarbons is higher than about 50 wt%, in another embodiment higher than about 70 wt% and in yet another embodiment, higher than about 80 wt%, for example 84 wt% or 85 wt%, of the isoparaffin blend. In a further particular embodiment, the isoparaffin oil consists of 100 wt% of branched hydrocarbon.

The isoparaffin oil according to above embodiments further may include hydrocarbon having from 8 to 20 carbon atoms, in another embodiment from 10 to 18 carbon atoms, and in yet

another embodiment from 11 to 16 carbon atoms. The hydrocarbons may be present either as single molecular species or in the form of a mixture of isomers.

The isoparaffin oil according to the above embodiments further may be added to the liquid cleaning composition at any stage of the manufacturing process. For example, the isoparaffin oil can be admixed with the perfume or added to the liquid cleaning composition before or after the perfume has been added to the composition.

Fragrance Ingredients

As discussed above, prior constraints experienced by perfumers with respect to the selection of perfume ingredients to be used in liquid cleaning compositions have been lessened due to the use of isoparaffin oils. Fragrance ingredients for use in compositions according to the present disclosure may be selected from natural products such as essential oils, absolutes, resinoids, resins, concretes, and synthetic perfume components such as hydrocarbons, alcohols, aldehydes, ketones, ethers, acids, acetals, ketals and nitriles, including saturated and unsaturated compounds, aliphatic, carbocyclic and heterocyclic compounds, or precursors of any of the above. Other examples of odorant compositions which may be used are described in H 1468 (United States Statutory Invention Registration, or in S. Arctander "Perfume and Flavor Chemicals: Volume 1, Allured Publishing Corporation 1969, or any later editions thereof, as well as the IFRA (International Fragrance Research Association) database, and RIFM (Research Institute of Fragrance Materials) database, each of which and hereby incorporated by reference in their entirety.

The liquid cleaning composition may contain from about 0.01% to about 3%, alternatively from about 0.02% to about 0.2%, alternatively from about 0.03% to about 0.1%, by weight of the liquid cleaning composition of fragrance ingredients.

Fragrance ingredients that are useful in liquid dishwashing compositions include (but are not limited to) ACETAL E ((2-(1-ethoxyethoxy)ethyl)benzene), ACETAL R ((2-(1-propoxyethoxy)ethyl)benzene), ADOXAL (2,6,10-trimethylundec-9-enal), FENCHYL ALCOHOL ((1S,2R,4R)-1,3,3-trimethylbicyclo[2.2.1]heptan-2-ol), ALCOHOL C 9 NONYLIC (nonan-1-ol), ALDEHYDE C 10 DECYLIC (decanal), ALDEHYDE C 12 LAURIC (dodecanal), ALDEHYDE C 12 MNA PURE (2-methylundecanal), ALDEHYDE C 8 OCTYLIC FOOD GRADE (octanal), ALLYL AMYL GLYCOLATE (allyl 2-(isopentyloxy)acetate), ALLYL CAPROATE (allyl hexanoate), ALLYL OENANTHATE (allyl heptanoate), AUBEPINE PARA

CRESOL (4-methoxybenzaldehyde), BENZYL ACETATE (benzyl acetate), BENZYL FORMATE (benzyl formate), BOISAMBRENE FORTE® ((ethoxymethoxy)cyclododecane), BORNYL ACETATE ((2S,4S)-1,7,7-trimethylbicyclo[2.2.1]heptan-2-yl acetate), BUTYL CYCLOHEXYL ACETATE PARA (4-(tert-butyl)cyclohexyl acetate), CAMPHOR(1S,4S)-1,7,7-trimethylbicyclo[2.2.1]heptan-2-one), CASHMERAN® (1,1,2,3,3-pentamethyl-2,3,6,7-tetrahydro-1H-inden-4(5H)-one), CETONE V ((E)-1-(2,6,6-trimethylcyclohex-2-en-1-yl)hepta-1,6-dien-3-one), CITRAL ((E)-3,7-dimethylocta-2,6-dienal), CITRONELLOL (3,7-dimethyloct-6-en-1-ol), CITRONELLYL ACETATE (3,7-dimethyloct-6-en-1-yl acetate), CITRONELLYL NITRILE (3,7-dimethyloct-6-enenitrile), CITRUS OILS, CLONAL (dodecanenitrile), CYCLAL C (2,4-dimethylcyclohex-3-enecarbaldehyde), CYMENE PARA, DAMASCENONE ((E)-1-(2,6,6-trimethylcyclohexa-1,3-dien-1-yl)but-2-en-1-one), DAMASCONE ALPHA ((E)-1-(2,6,6-trimethylcyclohex-2-en-1-yl)but-2-en-1-one), DELTA-3 CARENE ((1S,6S)-3,7,7-trimethylbicyclo[4.1.0]hept-3-ene), DIETHYL MALONATE (diethyl malonate), DIHYDRO MYRCENOL (2,6-dimethyloct-7-en-2-ol), DIPENTENE (1-methyl-4-(prop-1-en-2-yl)cyclohex-1-ene), DIPHENYL OXIDE (oxydibenzene), DIPROPYLENE GLYCOL, EUCALYPTOL COSMOS ((1s,4s)-1,3,3-trimethyl-2-oxabicyclo[2.2.2]octane), ETHYL LINALOOL ((E)-3,7-dimethylnona-1,6-dien-3-ol), FENCHYL ALCOHOL ((1S,2R,4R)-1,3,3-trimethylbicyclo[2.2.1]heptan-2-ol), FLORALOZONE (3-(4-ethylphenyl)-2,2-dimethylpropanal), FLORIDILE® ((E)-undec-9-enenitrile), FLOROPAL® (2,4,6-trimethyl-4-phenyl-1,3-dioxane), FLOROSA HC® (tetrahydro-4-methyl-2-(2-methylpropyl)-2H-pyran-4-ol), FRESKOMENTHE® (2-(sec-butyl)cyclohexanone), FRUTONILE® (2-methyldecanenitrile), GARDENOL (1-phenylethyl acetate), GERANIOL ((E)-3,7-dimethylocta-2,6-dien-1-ol), GERANYL ACETATE SYNTHETIC ((E)-3,7-dimethylocta-2,6-dien-1-yl acetate), HEDIONE® (methyl 3-oxo-2-pentylcyclopentaneacetate), HEXYL ACETATE (hexyl acetate), HEXYL CINNAMIC ALDEHYDE ((E)-2-benzylideneoctanal), HEXYL SALICYLATE (hexyl 2-hydroxybenzoate), IONONE BETA ((E)-4-(2,6,6-trimethylcyclohex-1-en-1-yl)but-3-en-2-one), IRONE ALPHA ((E)-4-(2,5,6,6-tetramethylcyclohex-2-en-1-yl)but-3-en-2-one), ISOPROPYL MYRISTATE (isopropyl tetradecanoate), JASMIN LACTONE GAMMA ((Z)-5-(hex-3-en-1-yl)-5-methyloxolan-2-one), LEMON OILS, LEMONILE® ((2E,6Z)-3,7-dimethylnona-2,6-dienenitrile), LILIAL (3-(4-(tert-butyl)phenyl)-2-methylpropanal), LIME OILS, LIME OXIDE, LINALOOL (3,7-dimethylocta-1,6-dien-3-ol), LINALYL ACETATE (3,7-dimethylocta-1,6-dien-3-yl acetate), MANDARIN OILS, MELONAL (2,6-dimethylhept-5-enal), MENTHONE (2-

isopropyl-5-methylcyclohexanone), METHYL AMYL KETONE (heptan-2-one), METHYL HEPTENONE PURE (6-methylhept-5-en-2-one), METHYL HEXYL KETONE (octan-2-one), METHYL NONYL KETONE EXTRA (undecan-2-one), METHYL SALICYLATE (methyl 2-hydroxybenzoate), METHYL-3 METHOXY-3 BUTANOL (3-methoxy-3-methylbutan-1-ol), NECTARYL (2-(2-(4-methylcyclohex-3-en-1-yl)propyl)cyclopentanone), NONANYL ACETATE (nonanyl acetate), ORANGE OILS, PATCHOULI OILS, PEACH PURE (5-heptyldihydrofuran-2(3H)-one), PELARGOL (3,7-dimethyloctan-1-ol), PEONILE® (2-cyclohexylidene-2-phenylacetonitrile), PHENYL ETHYL ALCOHOL (2-phenylethanol), PINENE ALPHA (2,6,6-trimethylbicyclo[3.1.1]hept-2-ene), PRENYL ACETATE (3-methylbut-2-en-1-yl acetate), PRUNOLIDE (5-pentyldihydrofuran-2(3H)-one), ROSE OXIDE CO (4-methyl-2-(2-methylprop-1-en-1-yl)tetrahydro-2H-pyran), SERENOLIDE (2-(1-(3,3-dimethylcyclohexyl)ethoxy)-2-methylpropyl cyclopropanecarboxylate), STEMONE ((E)-5-methylheptan-3-one oxime), TERPINEOL PURE (2-(4-methylcyclohex-3-en-1-yl)propan-2-ol), TERPINOLENE (1-methyl-4-(propan-2-ylidene)cyclohex-1-ene), TETRAHYDRO LINALOOL (3,7-dimethyloctan-3-ol), TETRAHYDRO MYRCENOL (2,6-dimethyloctan-2-ol), TRIACETIN (propane-1,2,3-triyl triacetate), TRICYCLAL (2,4-dimethylcyclohex-3-enecarbaldehyde), TRIETHYL CITRATE (triethyl 2-hydroxypropane-1,2,3-tricarboxylate), TRIFERNAL (3-phenylbutanal).

In a particular embodiment, the liquid dishwashing composition may include a perfume mixture comprising greater than about 10 wt%, in another embodiment greater than about 15 wt%, in another embodiment greater than about 20 wt%, and in yet another embodiment greater than about 25 wt% of terpenic alcohols and alcohols derived from modified terpenes, such as CITRONELLOL (3,7-dimethyloct-6-en-1-ol), DIHYDRO MYRCENOL (2,6-dimethyloct-7-en-2-ol), ETHYL LINALOOL ((E)-3,7-dimethylnona-1,6-dien-3-ol), FENCHYL ALCOHOL ((1S,2R,4R)-1,3,3-trimethylbicyclo[2.2.1]heptan-2-ol), GERANIOL ((E)-3,7-dimethylocta-2,6-dien-1-ol), LINALOOL (3,7-dimethylocta-1,6-dien-3-ol), ETHYL LINALOOL ((E)-3,7-dimethylnona-1,6-dien-3-ol), PELARGOL (3,7-dimethyloctan-1-ol), TETRAHYDRO LINALOOL (3,7-dimethyloctan-3-ol), TERPINEOL PURE (2-(4-methylcyclohex-3-en-1-yl)propan-2-ol), and the like; ALCOHOL C 9 NONYLIC (nonan-1-ol); alkyl alcohol esters and terpenic alcohol esters, such as CITRONELLYL ACETATE (3,7-dimethyloct-6-en-1-yl acetate), GERANYL ACETATE SYNTHETIC ((E)-3,7-dimethylocta-2,6-dien-1-yl acetate), HEXYL ACETATE (hexyl acetate), NONANYL ACETATE (nonanyl acetate), and the like; alkyl nitriles,

such as LEMONILE® ((2E,6Z)-3,7-dimethylnona-2,6-dienenitrile), FRUTONILE® (2-methyldecanenitrile),), CITRONELLYL NITRILE (3,7-dimethyloct-6-enenitrile), CLONAL (dodecanenitrile), FLORIDILE® ((E)-undec-9-enenitrile), and the like; and aldehydes, such as ALDEHYDE C 10 DECYLIC (decanal), ALDEHYDE C 12 LAURIC (dodecanal), ALDEHYDE C 12 MNA PURE (2-methylundecanal), ALDEHYDE C 8 OCTYLIC FOOD GRADE (octanal), ADOXAL (2,6,10-trimethylundec-9-enal), and the like.

Other Components

The liquid cleaning compositions according to the present disclosure can further include a number of other components suitable for use in liquid cleaning compositions such as but not limited to chelants, antibacterial actives, bleach actives, internal or external structuring systems, skin care actives including cationic conditioning polymers, humectants, emollients, enzymes and skin rejuvenation actives, polymers including cleaning or soil anti-redeposition polymers, surface modifying polymers and soil flocculating polymers, suspended particles including beads, cleaning and/or exfoliating particles, air bubbles, colorants, organic and inorganic opacifiers, organic and inorganic cations such as alkaline earth metals such as Ca/Mg-ions and diamines, suds stabilizers / boosters, anti-caking agents, viscosity trimming agents (e.g. salt such as NaCl and other mono-, di- and trivalent salts), preservatives and pH trimming and/or buffering means (e.g. carboxylic acids such as citric acid, HCl, NaOH, KOH, amines and alkanolamines, phosphoric and sulfonic acids, carbonates such as sodium carbonates, bicarbonates, sesquicarbonates, borates, silicates, phosphates, imidazole and alike).

As commonly understood in the detergent field, chelation herein means the binding or complexation of a bi- or multidentate ligand. These ligands, which are often organic compounds, are called chelants, chelators, chelating agents. Chelating agents form multiple bonds with a single metal ion. Chelants, are chemicals that form soluble, complex molecules with certain metal ions, inactivating the ions so that they cannot normally react with other elements or ions. The ligand forms a chelate complex with the substrate. The term is reserved for complexes in which the metal ion is bound to two or more atoms of the chelant. Beyond potentiating of antibacterial efficacy, the chelants might also demonstrate crystal growth inhibition properties, i.e. those that interact with the small calcium and magnesium carbonate particles preventing them from aggregating into hard scale deposit. The particles repel each other and remain suspended in the

water or form loose aggregates which may settle. These loose aggregates are easily rinsed away and do not form a deposit.

In one embodiment, suitable chelating agents can be selected from the group consisting of amino carboxylates, amino phosphonates, polyfunctionally-substituted aromatic chelating agents and mixtures thereof. Examples of chelants include amino acid based chelants, for example, glutamic-N,N- diacetic acid (GLDA) or methyl-glycine-diacetic acid (MGDA) and derivatives and/or phosphonate based chelants and for example Diethylenetriamine penta methylphosphonic acid (DTPMP) or hydroxyethyldiphosphonic acid (HEDP).

In one embodiment, suitable amino carboxylates include ethylenediaminetetra-acetates, N-hydroxyethylethylenediaminetriacetates, nitrilo-triacetates, ethylenediamine tetrapro-prionates, triethylenetetraaminehexacetates, diethylenetriaminepentaacetates, and ethanoldi-glycines, alkali metal, ammonium, and substituted ammonium salts therein and mixtures therein. As well as MGDA (methyl-glycine-diacetic acid), and salts and derivatives thereof and GLDA (glutamic-N,N- diacetic acid) and salts and derivatives thereof. In one embodiment, an example GLDA (salts and derivatives thereof) includes the tetrasodium salt thereof.

In another embodiment, other suitable chelants include; for example, aspartic acid-N-monoacetic acid (ASMA), aspartic acid-N,N-diacetic acid (ASDA), aspartic acid-N-monopropionic acid (ASMP), iminodisuccinic acid (IDS), Imino diacetic acid (IDA), N- (2-sulfomethyl) aspartic acid (SMAS), N- (2-sulfoethyl) aspartic acid (SEAS), N- (2-sulfomethyl) glutamic acid (SMGL), N- (2- sulfoethyl) glutamic acid (SEGL), N-methyliminodiacetic acid (MIDA), alanine-N,N-diacetic acid (ALDA) , serine-N,N-diacetic acid (SEDA), isoserine-N,N-diacetic acid (ISDA), phenylalanine-N,N-diacetic acid (PHDA) , anthranilic acid- N ,N - diacetic acid (ANDA), sulfanilic acid-N, N-diacetic acid (SLDA) , taurine-N, N-diacetic acid (TUDA) and sulfomethyl-N,N-diacetic acid (SMDA) and alkali metal salts or ammonium salts thereof. Also suitable is ethylenediamine disuccinate ("EDDS"). Hydroxyethyleneiminodiacetic acid, Hydroxyiminodisuccinic acid, Hydroxyethylene diaminetriacetic acid are also suitable.

Antibacterial actives

The choice of antibacterial active to be used depends on the particular situation. Some antibacterial actives have a broad spectrum (kill many different types of microorganisms), while others kill a limited spectrum of organisms but are preferred for other properties (they may be stable within the formula matrix, non-corrosive, nontoxic, etc.). Within Western Europe, the antibacterial actives that can be used in detergent applications are classified within the "Biocidal

Products Directive 98/8/EC (BPD"), more particularly within "MAIN GROUP 1: Disinfectants and general biocidal products - Product-type 2: Private area and public health area disinfectants and other biocidal products and Product-type 4: Food and feed area disinfectants" and under the Biocidal Products Regulation, more particularly within "MAIN GROUP 1: Disinfectants - Product-type 2: Disinfectants and algaecides not intended for direct application to humans or animals, and Product-type 4: Food and feed area disinfectants". Within North America, antibacterial products and actives that can be used are regulated by the FDA and EPA. Potentially the antibacterial actives can be combined with technologies potentiating the antibacterial activity of the antibacterial active such as chelants, solvents and surfactants, or can be combined with an antibacterial active carrying agent to improve deposition efficacy, especially metal ions preferably Zn^{2+} -ion, or could be bound to a deposition technology like a surface substantive deposition polymer to deliver a long lasting disinfection efficacy.

In one embodiment, suitable antibacterial actives may include aldehydes (formaldehyde, glutaraldehyde, orthophtalaldehyde), sulphur dioxide, sulphites, bisulphites, vanillic acid esters), chlorine and oxygen based oxidizing agents (sodium and calcium hypochlorite or hypobromite, chloramine and chloramine-T, chlorine dioxide, hydrogen peroxide, iodine, ozone, peracetic acid, performic acid, potassium permanganate, potassium peroxymonosulfate), phenolics (phenol, o-phenylphenol, chloroxylenol, hexachlorophene, amylmetacresol, 2,4-dichlorobenzyl alcohol, policresylen, fentichlor, 4-allylcatechol, p-hydroxybenzoic acid esters including benzylparaben, butylparaben, ethylparaben, methtlparaben and propylparaben, butylated hydroxyanisole, butylated hydroxytoluene, capaicin, carvacrol, creosol, eugenol, guaiacol), halogenated (hydroxy)diphenylethers (diclosan, triclosan, hexachlorophene and bromochlorophene, 4-hexylresorcinol, 8-hydroxyquinoline and salts thereof), quaternary ammonium compounds (benzalkonium chloride derivatives, benzethonium chloride derivatives, cetrimonium chloride/bromide, cetylpyridinium, cetrimide, benzoxonium chloride, didecyldimethyl ammonium chloride), acridine derivatives (ethacridine lactate, 9-aminoacridine, euflavine), biguanides including polymeric biguanides, and amidines (polyaminopropyl biguanide, dibrompropamidine, chlorhexidine, alexidine, propamidine, hexamidine, polihexanide), nitrofuran derivatives (nitrofurazone), quinoline derivatives (dequalinium, chlorquinaldol, oxyquinoline, clioquinol), iodine products, essential oils (bay, cinnamon, clove, thyme, eucalyptus, peppermint, lemon, magnolia extract, menthol, geraniol), cations -, Anilides (saclicylanilide, Diphenylureas), salicylic acid esters including menthyl salicylate, methyl

salicylate and phenyl salicylate, pyrocatechol, phtalic acid and salts thereof, hexetidine, octenidine, sanguinarine, domiphen bromide, alkylpyridinium chlorides such as cetylpyridinium chloride, tetradecylpyridinium chloride and N-tetradecyl-4-ethylpyridinium chloride, iodine, sulfonamides, piperidino derivatives such as delmopinol and octapinol, and mixtures thereof, miscellaneous preservatives (derivatives of 1,3-dioxane, derivatives of imidazole, Isothizolones, derivatives of hexamine, triazines, oxazolo-oxazoles, sodium hydroxymethylglycinate, methylene bisthiocyanate, captan).

Example of antibacterial systems include halogenated benzyl alcohol derivatives such as chloroxylenol (PCMX), halogenated hydroxydiphenylethers, for example, dicosan, quaternary ammonium salts, for example, alkylbenzalkonium and alkylbenzethonium chloride and derivatives thereof, and mixtures thereof and diclosan.

When present, the liquid cleaning composition may contain from about 0.001% to about 2%, alternatively from about 0.005% to about 1.5%, alternatively from about .01% to about 1%, alternatively from .05% to .1%, by weight of the liquid cleaning composition of antibacterial active.

Packaging

The liquid cleaning compositions according to the present disclosure may be packed in any suitable packaging for delivering the liquid cleaning composition for use. For example, the package may be a transparent or translucent package made of glass or plastic so that consumers can see the product throughout the packaging.

EXAMPLES

The following examples are given solely for the purpose of illustration and are not to be construed as limitations of the present invention, as many variations of the invention are possible without departing from the spirit and scope of the present disclosure.

The compositions illustrated below are prepared by conventional formulation and mixing methods. All exemplified amounts are listed as weight percents. The following Examples A-C exemplify specific embodiments of perfume compositions for use in liquid cleaner compositions, including in hand dishwashing compositions, but are not intended to be limiting thereof. Other modifications can be undertaken by the skilled artisan without departing from the spirit and scope of the present disclosure.

Examples A-C

Perfume Compositions for Liquid Hand Dishwashing Compositions

Fragrance ingredients	A	B	C
Terpenes and citrus oils (lemon, lime, orange and mandarin, etc)	32.1	24.7	82
Acyclic terpene and modified terpene alcohols	5.5	22.9	0.7
Cyclic alcohols	1.4	7.7	0.3
Alkyl esters	13	12.5	0.3
Aromatic esters	1.4	0	3.3
Aldehydes	13.4	17.1	3.5
Oxides	2.3	1.2	3.4
Nitriles	3.5	1	0.3
Ketones	0.5	2.3	0.3
Solvents	26.3	8.2	1
Other ingredients	0.6	2.4	4.9
Total wt%	100	100	100

Example D

Effect of isoparaffinic oil on Krafft point

Example A ("Perfume A") was added to two different, unperfumed commercial bases, referred to as HDW Base A and HDW Base B. The Krafft point (KP) was determined visually as the onset of turbidity on cooling 13g sample, placed in a 1.5 cm diameter test tube, in an ice bath having a temperature of -10 °C. Base B was particularly problematic in terms of sensitivity toward addition of perfume. See Table 1 below.

The same operation was repeated, but this time, an isoparaffinic oil (Isopar® L, available from Exxon) was added to the composition. The isoparaffinic oil to perfume percentage ratio was equal to 1 (HDW Base A) and 0.5 (HDW Base B). Isopar® L is characterized by a distribution of C11-C13 branched, linear and cyclic hydrocarbons. See Table 2 below.

Table 1

HDW Base A

Fragrance	**Dosage (%)**	**KP (°C)**
Perfume A	0.0	0

Perfume A	0.4	6
Perfume A + Isopar L	0.4 +0.4	2

Table 2

HDW Base B

Fragrance	**Dosage (%)**	**KP (°C)**
Perfume A	0.0	8
Perfume A	0.4	20
Perfume A + Isopar L	0.4 + 0.2	11

As shown, the addition of an isoparaffinic oil reduces the Krafft point of the perfumed base

Example E

Effect of Level of Isoparaffinic Oil on Krafft Point

An isoparaffinic oil (Isopar® L, available from Exxon) was added in increasing amounts to Example B ("Perfume B") and HDW Base B. The Krafft point (KP) was determined visually as the onset of turbidity on cooling 13g sample, placed in a 1.5 cm diameter test tube, in an ice bath having a temperature of -10 °C. The isoparaffinic oil to perfume percentage ratio was varied from 0.44 to 1.25. See Table 3 below.

Table 3

Fragrance	**Dosage (%)**	**KP (°C)**
Perfume B	0.16	11
Perfume B + Isopar L (30%)	0.16 + 0.07	8/9
Perfume B + Isopar L (38%)	0.16 + 0.1	7
Perfume B + Isopar L (55%)	0.16 + 0.2	4

The results demonstrate that there is a direct correlation between the Krafft point and the level of isoparaffinic oil in the composition. The results also demonstrate the efficiency of Isopar L in

lowering the Krafft point in a composition comprising a perfume having high level of terpenic alcohols and analogues.

Example F

Effect of Isoparaffin Molecular Weight on Krafft Point

The above trials were repeated, using Perfume A and HDW Base B, with different isoparaffinic oils, characterized by different hydrocarbon chain length. The results are reported in Table 4.

Table 4

Fragrance	**Isoparaffin chain length**	**Dosage (%)**	**KP (°C)**
Perfume A		0.80	13
Perfume A + Isopar G	C10 – C12	0.8 + 0.34	11/10
Perfume A + Isopar H	C11 – C12	0.8 + 0.34	11
Perfume A + Isopar L	C11 – C13	0.8 + 0.34	7
Perfume A + Isopar M	C11 – C16	0.8 + 0.34	6/7
Perdume A + Isopar V	C12 – C20	0.8 + 0.34	5

The results demonstrate that the impact on the Krafft point increases when increasing the molecular weight of the isoparaffin hydrocarbon.

The dimensions and values disclosed herein are not to be understood as being strictly limited to the exact numerical values recited. Instead, unless otherwise specified, each such dimension is intended to mean both the recited value and a functionally equivalent range surrounding that value. For example, a dimension disclosed as “40 mm” is intended to mean “about 40 mm”.

Every document cited herein, including any cross referenced or related patent or application, is hereby incorporated herein by reference in its entirety unless expressly excluded or otherwise limited. The citation of any document is not an admission that it is prior art with respect to any invention disclosed or claimed herein or that it alone, or in any combination with any other reference or references, teaches, suggests or discloses any such invention. Further, to the extent that any meaning or definition of a term in this document conflicts with any meaning

or definition of the same term in a document incorporated by reference, the meaning or definition assigned to that term in this document shall govern.

While particular embodiments of the present invention have been illustrated and described, it would be obvious to those skilled in the art that various other changes and modifications can be made without departing from the spirit and scope of the invention. It is therefore intended to cover in the appended claims all such changes and modifications that are within the scope of this invention.

CLAIMS

What is claimed is:

1. A liquid cleaning composition comprising:
    a. at least one surfactant; and
    b. a perfume mixture including (i) at least one isoparaffin oil; and (ii) at least one fragrance ingredient; wherein the oil and fragrance ingredient mixture has a percentage ratio of from about 0.1 to about 2.0.

2. The liquid cleaning composition according to claim 1, wherein the at least one surfactant is selected from the group consisting of anionic, nonionic, cationic, zwitterionic, amphoteric surfactants, and mixtures thereof.

3. The liquid cleaning composition according to claim 1, wherein the at least one fragrance ingredient is present at a level of from about 0.01% to about 2.0% by weight of the liquid cleaning composition.

4. The liquid cleaning composition according to claim 1, wherein the at least one fragrance ingredient comprises greater than or equal to about 15% by weight of the liquid cleaning composition of terpenic alcohols and alcohols derived from modified terpenes.

5. The liquid cleaning composition according to claim 1, wherein the isoparaffin oil includes hydrocarbons having from 8 to 20 carbon atoms.

6. The liquid cleaning composition according to claim 1, wherein the isoparaffin oil includes hydrocarbons having from 10 to 18 carbon atoms.

7. The liquid cleaning composition according to claim 1, wherein the isoparaffin oil comprises greater than or equal to about 50% branched hydrocarbons.

8. The liquid cleaning composition according to claim 1, wherein the isoparaffin oil comprises greater than or equal to about 80% branched hydrocarbons.

9. The liquid cleaning composition according to claim 1, wherein the oil and fragrance ingredient mixture has a percentage ratio of from about 0.4 to about 1.5.

10. The liquid cleaning composition according to claim 1, wherein the cleaning composition is a liquid hand dishwashing composition.

11. A liquid cleaning composition comprising:
    a. at least one surfactant;
    b. at least one organic solvent; and
    c. a perfume mixture including (i) at least one fragrance ingredient; and (ii) at least one isoparaffin oil; wherein the oil includes greater than or equal to about 50% branched hydrocarbons.

12. The liquid cleaning composition according to claim 11, wherein the isoparaffin oil comprises greater than or equal to about 80% branched hydrocarbons.

13. The liquid cleaning composition according to claim 11, wherein the at least one fragrance ingredient comprises greater than or equal to about 15% by weight of the liquid cleaning composition of terpenic alcohols and alcohols derived from modified terpenes.

14. The liquid cleaning composition according to claim 11, wherein the isoparaffin oil includes hydrocarbons having from 8 to 20 carbon atoms.

15. The liquid cleaning composition according to claim 11, wherein the oil and fragrance ingredient mixture has a percentage ratio of from about 0.1 to about 2.0.

16. The liquid cleaning composition according to claim 11, wherein the oil and fragrance ingredient mixture has a percentage ratio of from about 0.4 to about 1.5.

17. A liquid hand dishwashing product comprising:
    a. a composition including (i) at least one surfactant; (ii) at least one organic solvent; and (iii) a perfume mixture including at least one isoparaffin oil, and at least one

fragrance ingredient, wherein the oil and fragrance ingredient mixture has a percentage ratio of from about 0.1 to about 2.0; and

b. a container including a dispensing orifice.

18. The liquid hand dishwashing product according to claim 17, wherein the isoparaffin oil comprises greater than or equal to about 80% branched hydrocarbons.

19. The liquid hand dishwashing product according to claim 17, wherein the isoparaffin oil includes hydrocarbons having from 10 to about 18 carbon atoms.

20. The liquid hand dishwashing product according to claim 17, wherein the oil and fragrance ingredient mixture has a percentage ratio of from about 0.4 to about 1.5.

INTERNATIONAL SEARCH REPORT

International application No
PCT/EP2016/074389

A. CLASSIFICATION OF SUBJECT MATTER
INV. C11D3/18 C11D3/20 C11D3/50
ADD.

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)
C11D

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)
EPO-Internal, WPI Data

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	EP 0 878 535 A1 (PROCTER & GAMBLE [US]) 18 November 1998 (1998-11-18) page 10, line 58 - page 11, line 5; example	1-12, 14-19
X	EP 0 478 086 A2 (COLGATE PALMOLIVE CO [US]) 1 April 1992 (1992-04-01) page 4, line 44 - line 54; examples	1-20
A	EP 1 270 711 A1 (GIVAUDAN SA [CH]) 2 January 2003 (2003-01-02) examples	1-20
A	WO 2008/028310 A1 (GIVAUDAN SA [CH]; MCGEE THOMAS [US]; SMIALOWICZ DENIS THOMAS [US]; SGA) 13 March 2008 (2008-03-13) examples	1-20

☐ Further documents are listed in the continuation of Box C.

☒ See patent family annex.

* Special categories of cited documents :

"A" document defining the general state of the art which is not considered to be of particular relevance

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Date of the actual completion of the international search	Date of mailing of the international search report
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European Patent Office, P.B. 5818 Patentlaan 2 NL - 2280 HV Rijswijk Tel. (+31-70) 340-2040, Fax: (+31-70) 340-3016	Grittern, Albert

1

INTERNATIONAL SEARCH REPORT

Information on patent family members

International application No
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