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(54) **Package comprising an adhesive perfume delivery material**

(57) Product comprising:
- a particulate composition,
- an adhesive perfume delivery material,
- a package at least partially separating the product and the perfume delivery material from the external environment

wherein the adhesive perfume delivery material is adhered onto an internal wall of the package and wherein at least 60% by weight of the particulate composition has a particle size of above 150 μm.

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Description

TECHNICAL FIELD

[0001] The present invention relates to a product comprising a package containing an adhesive perfume delivery material and a particulate composition.

BACKGROUND OF THE INVENTION

[0002] Products such as consumer products are typically designed and/or formulated to include a perfume. The perfume of the product may improve the sensory experience of the consumer for example at the point of purchase of the product, during the use, and/or after the use of the product. To provide the consumer with a satisfying sensory experience, several perfume delivery systems have been developed. WO 07/35646 discloses a long list of these perfume delivery systems. The list includes perfume delivery systems comprising an adhesive perfume delivery material.

[0003] However, when using an adhesive perfume delivery material, the sensory experience of the consumer, for example when opening the package of the product, may vary. Variations of the sensory experience of the consumer are typically observed when the product comprises a particulate composition and/or when an adhesive perfume delivery material is adhered to an internal wall of the package.

[0004] The sensory experience of the consumer may depend on the way the product has been manufactured, shipped, or stored, or may depend on the relative position of the adhesive perfume delivery material in the package of the product.

[0005] For example, the sensory experience of the consumer when the particulate composition is fully or partially covering the adhesive perfume delivery material may be different from the sensory experience of the consumer when the particulate composition is not covering the adhesive perfume delivery material. This may happen if the package is opened when the product is up-side down or if the particulate composition has contacted the adhesive perfume delivery material when filling the package or when stocking the product.

[0006] The sensory experience of the consumer may also be different at the point of purchase of the product, during the use, and/or after the use of the product. The sensory experience of the consumer when opening the package of the product for the first time may be different from the sensory experience of the consumer when opening the package of the product for the second time.

[0007] The sensory experiences of the consumer may vary when the particulate composition has a different porosity, relative humidity, and/or a different density. The sensory experiences of the consumer may vary when there is a change in the chemical composition of the particulate composition.

[0008] The sensory experience of the consumer when opening the package of the product in a way such as the adhesive perfume delivery material is substantially covered by the particulate composition may be different from the sensory experience of the consumer when opening the package of the product in a way such as the adhesive perfume delivery material is not substantially covered by the particulate composition.

[0009] The sensory experience of the consumer when the product has been stored with the adhesive perfume delivery material on the upper part of the product may be different from the sensory experience of the consumer when the product has been stored with the adhesive perfume delivery material on the lower part of the product.

[0010] The sensory experience of the consumer may also vary from product to product. In particular, the sensory experience of the consumer opening a product 1 week after the manufacturing of the product may be different from the sensory experience of the consumer opening a product 4 months after the manufacturing of the product.

[0011] Such variations may result in a lack of control of the sensory experience of the consumer, a non-optimal benefit delivery to the consumer, and/or a restriction of the choices to manufacture a satisfying product.

[0012] Thus, there is a need for a product comprising an adhesive perfume delivery material and a particulate composition, said product alleviating the problem of the lack of control of the sensory experience of the consumer.

[0013] Alleviating the problem of the lack of control of the sensory experience of the consumer may mean that the sensory experience of the consumer is less dependant of parameters such as:
the number of times the package of the product has been opened before the sensory experience of the consumer, the moment of the sensory experience of the consumer, the way the package of the product is opened, the features of the product, and/or the way the product is manufactured, shipped, or stored.

[0014] Alleviating the problem of the lack of control of the sensory experience of the consumer may mean that a better control of the rate of release of the perfume, of the intensity of the perfume, and/or of the character (the smell) of the perfume, is obtained. In particular, alleviating the problem of the lack of control of the sensory experience of the consumer may mean that a better control of the intensity of the perfume is obtained.

SUMMARY OF THE INVENTION

[0015] In one embodiment of the present invention, the invention concerns a product comprising:

- a particulate composition,
- an adhesive perfume delivery material,
- a package at least partially separating the product and the adhesive perfume delivery material from the external environment

wherein the adhesive perfume delivery material is adhered onto an internal wall of the package and wherein at least 60% by weight of the particulate composition has a particle size of above 150 μm.

[0016] The inventors have found that products of the invention could allow a better control of the sensory experience of the consumer.

[0017] The inventors have found that smaller particle cover more fully and/or in a more resilient manner the adhesive perfume delivery material such that the properties of the adhesive perfume delivery material are more affected by smaller particles.

[0018] The present invention also concerns the process of manufacturing a product according to the invention comprising at least the two following steps in any order:

a- filling of the package with the particulate composition,
b- adhering the adhesive perfume delivery material onto an internal wall of the package,

wherein the time lapse between step a and step b is of less than 7 days, in particular of less than 1 day, for example of less than 2 hours.

[0019] The inventors have found that the lack of control in the sensory experience delivered by the product that could arise when filling the particulate composition and adhering the adhesive perfume delivery material over a short period of time could be reduced when manufacturing a product according to the invention.

[0020] Unless otherwise specified, the percentage and ratio in the claims and the present specification are by weight.

DETAILED DESCRIPTION OF THE INVENTION

The Product

[0021] The product of the invention comprises a particulate composition, an adhesive perfume delivery material and a package. The product may be in the form it is intended to be sold to the consumer. It may be intended not to submit the product to subsequent commercial manufacture or modification.

[0022] The product may be a consumer product in the field of baby care, beauty care, fabric & home care, family care, feminine care, health care, snack and/or beverage. In particular, the product may be a fabric-care product, for example a laundry detergent composition.

The particulate composition

[0023] The product of the invention comprises a particulate composition. The product may comprise from 50 to 99.99%, from 70 to 99.9%, from 85 to 99% or from 95 to 98%, by weight of particulate composition.

[0024] A particulate composition may be a granular or powder-form composition. Preferably the particulate composition is in free-flowing particulate form. The particulate composition may be made by any particulation or granulation process. An example of such a process is spray drying (in a co-current or counter current spray drying tower). Other suitable processes include fluid bed processes, compaction processes (e.g. roll compaction), extrusion and spheronization processes, as well as any chemical process like flocculation, crystallisation, or sintering. The particulate composition may be made by different processes, for example, part of the particulate composition may have been obtained by spray drying and another part may have been dry-added.

[0025] At least 60% by weight of the particulate composition has a particle size of above 150 μm. In a preferred embodiment, at least 60% by weight of the particulate composition has a particle size of above 200 μm or 250 μm or 300 μm or 400 μm or 500 μm or 700 μm In particular, at least 70% or 80% or 90% by weight of the particulate composition has a particulate size of above 150 μm.

[0026] At least 90 or 95% by weight of the particulate composition may have a particle size of above 100 μm.

[0027] At least 60%, in particular, by weight of the particulate composition may have a particle size in the range of from 150 μm to 3000 μm. At least 50%, in particular at least 60% or 70% or 80% or 90% by weight of the particulate

composition may have a particle size in the range of from 200 μm to 2000 μm, or in the range of from 250 μm to 1500 μm, or in the range of from 300 μm to 1000 μm, or in the range of from 350 μm to 800 μm.

[0028] Without wishing to be bound by theory, the inventors believe that when the particles of the particulate composition are in contact with the adhesive perfume delivery material, particulate composition with a broad particle size distribution tends to cover the adhesive perfume delivery material in a more air-tight way. As such, the properties of the adhesive perfume delivery material could be less affected by particulate composition having a narrower particles size distribution.

[0029] Preferably, the % by weight of the particulate composition which has a particle size of less than x μm size is measured by sievieng. For example, the following method is used.

[0030] A x μm sieve is fitted on a base pan.

[0031] 50.0 g of the particulate composition is poured onto the calibrated sieve and the sieve is closed with a lid.

[0032] The sieve, the lid, and the base pan are fixed into a rotap RX-29-10 (from Gilson Company Inc) equipment.

[0033] The rotap is calibrated for 152 taps per minutes, 285 rpm elliptical motion.

[0034] The rotap is switched on for 2 minutes. The measurement is done at ambient condition, for example at 20°C and at a relative humidity of 30%.

[0035] The quantity of particulate composition onto the base pan is weighted and is multiplied by 2 to obtain the % by weight of the particulate composition which has a particle size of less than x μm size.

[0036] The weight of particulate composition remaining on the sieve is weighted and the measurement is repeated if the weight of particulate composition onto the sieve and in the base pan is not equal to 50.0 g ± 0.1 g.

[0037] Preferably, the % by weight of the particulate composition which has a particle size of more than x μm size is measured by sievieng. For example, the method defined just above is used; the weight of particulate composition remaining on the sieve and multiplied by 2 corresponds to the % by weight of the particulate composition which has a particle size of more than x μm size.

[0038] The particulate composition may also have a specific moisture content, expressed as a relative humidity value at 1 atmosphere and 20°C. The particulate composition of the invention may have a relative humidity value below 45%, in particular between 5% and 35% or even between 10% and 25%. Particulate composition having such a relative humidity value may allow a better control of the sensory experience of the consumer. The term "relative humidity value" as used herein relates to the relative humidity of air in the package in equilibrium with the particulate composition in the package. It is an indirect measurement of the water activity in a solid. It is the ratio of the current water concentration in the air (kg water/kg air) to the maximum at a given temperature and pressure, expressed as a percentage of the value for saturated air. For a solid an equilibrium is established between the water in the solid and the atmosphere, and the measured relative humidity is a characteristic for that solid at a given temperature and pressure.

[0039] The particulate composition may have a bulk density of from 300 g/l to 1,500 g/l, for example from 400 g/l to 1,200 g/l or from 500 g/l to 1,000 g/l.

[0040] The particulate composition may comprise at least 20%, for example at least 30% or 40%, by weight of chemical compounds which do not comprise C-H (carbon-hydrogen) bonds. The particulate composition may comprise less than 40%, or less than 20%, in particular less than 15%, or even less than 10%, by weight of surfactant. The particulate composition may comprise less than 20%, or less than 15, 10, 5 or 2%, by weight of aluminosilicate builders. Particulate composition comprising a lower level of surfactant and/or a higher level of inorganic compounds or compounds that do not comprise C-H bonds and/or a lower level of aluminosilicate builders may allow a better control of the sensory experience of the consumer.

[0041] The particulate composition may comprise a bleaching agent. For example the composition may comprise at least 0.1%, or at least 1, 2, 5 or 10%, by weight of bleaching agent. The product of the invention may allow a better control of the sensory experience of the consumer, even when the particulate composition comprises a bleaching agent.

[0042] The particulate composition may comprise a perfume. The weight ratio of the perfume comprised in the particulate composition to the perfume comprised on the adhesive perfume delivery material may be from 0.01 to 20, from 0.05 to 10, or even from 0.1 to 5 or 0.2 to 2.

[0043] The particulate composition may be a detergent composition in particular a laundry detergent composition.

[0044] The particulate composition may comprise ingredients chosen among the non-limiting list of ingredient illustrated hereinafter. The precise nature of these additional adjunct components, and levels of incorporation thereof, will depend on the physical form of the composition and the nature of the operation for which the particulate composition is to be used. Suitable ingredients include, but are not limited to, surfactants, builders, flocculating aid, chelating agents, dye transfer inhibitors, enzymes and enzyme stabilizers, catalytic materials, bleach activators, hydrogen peroxide, sources of hydrogen peroxide, preformed peracids, polymeric dispersing agents, clay soil removal/anti-redeposition agents, brighteners, suds suppressors, dyes, perfumes, structure elasticizing agents, fabric softeners, carriers, hydrotropes, processing aids, solvents and/or pigments. When one or more of these ingredients are present, such one or more adjuncts may be present as detailed below:

SURFACTANT - The particulate composition may comprise a surfactant or surfactant system. The compositions

may comprise from 0.01% to 90%, or from 5 to 10%, by weight of a surfactant system. The surfactant may be selected from nonionic surfactants, anionic surfactants, cationic surfactants, ampholytic surfactants, zwitterionic surfactants, semi-polar nonionic surfactants and mixtures thereof.

Anionic surfactants

[0045] Typically, the particulate composition comprises from 1 to 50 wt% anionic surfactant, more typically from 2 to 40 wt%.

[0046] Suitable anionic surfactants typically comprise one or more moieties selected from the group consisting of carbonate, phosphate, phosphonate, sulphate, sulphonate, carboxylate and mixtures thereof. The anionic surfactant may be one or mixtures of more than one of C_{8-18} alkyl sulphates and C_{8-18} alkyl sulphonates, linear or branched, optionally condensed with from 1 to 9 moles of C_{1-4} alkylene oxide per mole of C_{8-18} alkyl sulphate and/or C_{8-18} alkyl sulphonate.

[0047] Preferred anionic detersive surfactants are selected from the group consisting of: linear or branched, substituted or unsubstituted, C_{12-18} alkyl sulphates; linear or branched, substituted or unsubstituted, C_{10-13} alkylbenzene sulphonates, preferably linear C_{10-13} alkylbenzene sulphonates; and mixtures thereof. Highly preferred are linear C_{10-13} alkylbenzene sulphonates. Highly preferred are linear C_{10-13} alkylbenzene sulphonates that are obtainable, preferably obtained, by sulphonating commercially available linear alkyl benzenes (LAB); suitable LAB include low 2-phenyl LAB, such as those supplied by Sasol under the tradename Isochem® or those supplied by Petresa under the tradename Petrelab®, other suitable LAB include high 2-phenyl LAB, such as those supplied by Sasol under the tradename Hyblene®.

Alkoxylated anionic surfactants

[0048] The particulate composition may comprise an alkoxylated anionic surfactant. When present alkoxylated anionic surfactant will generally be present in amounts form 0.1 wt% to 40 wt%, for example from 1wt% to 3wt% based on the particulate composition.

[0049] Typically, the alkoxylated anionic detersive surfactant is a linear or branched, substituted or unsubstituted C_{12-18} alkyl alkoxylated sulphate having an average degree of alkoxylation of from 1 to 30, preferably from 3 to 7.

[0050] Suitable alkoxylated anionic detersive surfactants are: Texapan LESTTM by Cognis; Cosmacol AESTM by Sasol; BES151TM by Stephan; Empicol ESC70/UTM; and mixtures thereof.

Non-ionic detersive surfactant

[0051] The particulate composition may comprise non-ionic surfactant. Where present the non-ionic detersive surfactant(s) is generally present in amounts of from 0.5 to 20wt%, or from 2wt% to 4wt% by weight of the particulate composition.

[0052] The non-ionic detersive surfactant can be selected from the group consisting of: alkyl polyglucoside and/or an alkyl alkoxylated alcohol; C_{12}-C_{18} alkyl ethoxylates, such as, NEODOL® non-ionic surfactants from Shell; C_6-C_{12} alkyl phenol alkoxylates wherein the alkoxylate units are ethyleneoxy units, propyleneoxy units or a mixture thereof; C_{12}-C_{18} alcohol and C_6-C_{12} alkyl phenol condensates with ethylene oxide/propylene oxide block polymers such as Pluronic® from BASF; C_{14}-C_{22} mid-chain branched alcohols, BA, as described in more detail in US 6,150,322; C_{14}-C_{22} mid-chain branched alkyl alkoxylates, BAEx, wherein x = from 1 to 30, as described in more detail in US 6,153,577, US 6,020,303 and US 6,093,856; alkylpolysaccharides as described in more detail in US 4,565,647, specifically alkylpolyglycosides as described in more detail in US 4,483,780 and US 4,483,779; polyhydroxy fatty acid amides as described in more detail in US 5,332,528, WO 92/06162, WO 93/19146, WO 93/19038, and WO 94/09099; ether capped poly(oxyalkylated) alcohol surfactants as described in more detail in US 6,482,994 and WO 01/42408; and mixtures thereof.

Cationic detersive surfactant

[0053] The particulate composition may comprise a cationic detersive surfactant. When present, preferably the particulate composition comprises from 0.1wt% to 10 wt%, or from 1wt% to 2wt% cationic detersive surfactant.

[0054] Suitable cationic detersive surfactants are alkyl pyridinium compounds, alkyl quaternary ammonium compounds, alkyl quaternary phosphonium compounds, and alkyl ternary sulphonium compounds. The cationic detersive surfactant can be selected from the group consisting of: alkoxylate quaternary ammonium (AQA) surfactants as described in more detail in US 6,136,769; dimethyl hydroxyethyl quaternary ammonium surfactants as described in more detail in US 6,004,922; polyamine cationic surfactants as described in more detail in WO 98/35002, WO 98/35003, WO 98/35004, WO 98/35005, and WO 98/35006; cationic ester surfactants as described in more detail in US 4,228,042, US 4,239,660, US 4,260,529 and US 6,022,844; amino surfactants as described in more detail in US 6,221,825 and WO 00/47708,

specifically amido propyldimethyl amine; and mixtures thereof.

[0055] Highly preferred cationic detersive surfactants are mono-C_{8-10} alkyl mono-hydroxyethyl di-methyl quaternary ammonium chloride, mono-C_{10-12} alkyl mono-hydroxyethyl di-methyl quaternary ammonium chloride and mono-C_{10} alkyl mono-hydroxyethyl di-methyl quaternary ammonium chloride. Cationic surfactants such as Praepagen HY (trade-name Clariant) may be useful and may also be useful as a suds booster.

[0056] BUILDER - The particulate composition may comprise a builder, in particular a water-insoluble or partially water-soluble builder, a water-soluble builder, or a combination thereof.

Water-insoluble or partially water- soluble builder

[0057] The particulate composition may comprise water-insoluble or partially water-soluble builder. Examples of largely water insoluble builders include the sodium aluminosilicates. Suitable aluminosilicate zeolites have the unit cell formula

$$Na_z[(Al\ O_2)_z(SiO_2)_y].\ xH_2O$$

wherein z and y are at least 6; the molar ratio of z to y is from 1.0 to 0.5 and x is at least 5, preferably from 7.5 to 276, more preferably from 10 to 264.

[0058] The aluminosilicate material is in hydrated form and is preferably crystalline, containing from 10% to 28%, more preferably from 18% to 22% water by weight in bound form. The aluminosilicate zeolites can be naturally occurring materials, but are preferably synthetically derived. Synthetic crystalline aluminosilicate ion exchange materials are available under the designations Zeolite A, Zeolite B, Zeolite P, Zeolite X, Zeolite HS and mixtures thereof Zeolite A has the formula:

$$Na_{12}[(Al\ O_2)_{12}(SiO_2)_{12}].\ xH_2O$$

wherein x is from 20 to 30, especially 27. Zeolite X has the formula:

$$Na_{86}\ [(Al\ O_2)_{86}(SiO_2)_{106}].\ 276\ H_2O$$

[0059] Preferred crystalline layered silicates for use herein have the general formula:

$$NaMSi_xO_{2x}+1.yH_2O$$

wherein M is sodium or hydrogen, x is a number from 1.9 to 4 and y is a number from 0 to 20.

[0060] Crystalline layered sodium silicates of this type are disclosed in EP-A- 0164514 and methods for their preparation are disclosed in DE-A-3417649 and DE-A-3742043. Herein, x in the general formula above preferably has a value of 2, 3 or 4 and is preferably 2. The most preferred material is 8- $Na_2Si_2O_5$, available from Hoechst AG as NaSKS-6.

Water-soluble builder

[0061] The particulate composition may comprise a water-soluble builder. Preferably, the water-soluble builder comprises an alkali or alkaline earth metal salt of phosphate. Suitable examples of a water-soluble phosphate builders are the alkali metal tripolyphosphates, sodium, potassium and ammonium pyrophosphate, sodium and potassium and ammonium pyrophosphate, sodium and potassium orthophosphate, sodium polymeta/phosphate in which the degree of polymerisation ranges from about 6 to 21, and salts of phytic acid. The builder may also comprise polycarboxylic acids and salts thereof, preferably citric acid, alkali metal salts thereof, and combinations thereof.

[0062] The particulate composition may comprise (by weight) from 1% to 40%, more preferably from 3%, or from 5%, or from 8%, to 25%, to 15%, or to 10% builder.

[0063] BLEACHING AGENT - The particulate composition may comprise one or more bleaching agents. In general, when a bleaching agent is used, the compositions of the present invention may comprise from about 0.1% to about 50% or even from about 0.1% to about 25% bleaching agent by weight of the subject detergent composition. When present, suitable bleaching agents include bleaching catalysts, photobleaches for example Vitamin K3 and zinc or aluminium phtalocyanine sulfonate; bleach activators such as tetraacetyl ethylene diamine (TAED) and nonanoyloxybenzene sulphonate (NOBS); hydrogen peroxide; pre-formed peracids; sources of hydrogen peroxide such as inorganic perhydrate salts, including alkali metal salts such as sodium salts of perborate (usually mono- or tetra-hydrate), percarbonate, persulphate, perphosphate, persilicate salts and mixtures thereof, optionally coated, suitable coatings including inorganic salts such as alkali metal; and mixtures thereof.

[0064] The amounts of hydrogen peroxide source and peracid or bleach activator may be selected such that the molar

ratio of available oxygen (from the peroxide source) to peracid is from 1:1 to 35:1, or even 2:1 to 10:1

The adhesive Perfume delivery material

[0065] The product of the invention comprises at least one adhesive perfume delivery material.
The product may comprise from 0.001% to 50%, from 0.01 to 20% or even from 0.1 to 5% by weight of adhesive perfume delivery material(s).

[0066] The product may comprise two or more adhesive perfume delivery material. The perfume delivery material may be adhered to different parts of the internal wall of the package. As such, at least one adhesive perfume delivery material may be on top of the product, whatever the orientation of the product at the time of opening of the product.

[0067] The adhesive perfume delivery material comprises at least one adhesive material. The adhesive material is suitable to deliver perfumes. The adhesive perfume delivery material may comprise from 10 to 90%, for example from 15 to 80% or from 20 to 70% or even from 30 to 60% of adhesive material.

[0068] Before application to the package, the adhesive material may be in the form of a low-viscosity liquid, a viscous paste, a film, a semisolid or a solid. The adhesive material may comprise a pressure sensitive adhesive, a hotmelt adhesive, a solution adhesive and/or a structural adhesive. Preferably, the adhesive material comprises a hotmelt adhesive.

[0069] Examples of adhesives are given in the Kirk-Othmer Encyclopedia of chemical technology, fifth edition, volume 1, pages 524-553.

[0070] The adhesive material may comprise a polymeric material. The adhesive material may comprise starch, protein, cellulose ether, cellulose ester, natural rubber, synthetic rubber, polyethylene, polypropylene, poly(vinyl ester), poly(vinyl chloride), poly(vinyl alcohol), poly(vinyl acetales), (meth)acrylate polymer, poly(vinyl ether), polyvinylpyrrolidone, polystyrene, polyester, polyurethane, polyisocyannate, epoxy resin, phenolic resin, resorcinol resins, urea resins, melamine-formaldehyde resins and/or nonreactive resins.

[0071] The adhesive material may comprise a hotmelt adhesive. A hotmelt adhesive is solid at room temperature (20°C). The hotmelt adhesive is usually heaten to a molten liquid state, applied hot onto the internal wall of the package and then cooled, adhering to the package. The application temperature of the hotmelt adhesive is typically between 65°C and 220°C, for example less than 150°C, 100°C, 80°C or even less than 75°C. Typically, hotmelt adhesives do not undergo chemical changes during the melting process.

[0072] The hotmelt adhesive may comprise a thermoplastic resin or elastomer. The hotmelt adhesive may comprise an ethylene-vinyl acetate copolymer, an ethylene-ethyl acrylate copolymers, an amorphous polyefins, a branched polyethylenes, a polypropylene, a polybuene-1, a phenoxy resin, a polyamide, a polyester, a polyurethane, a styrenic block polymers, and/or any combination thereof The hotmelt adhesive may comprise a copolymer of ethylene with at least another monomer comprising at least a heteroatom. A monomer comprising at least a heteroatom includes all those monomers which comprise at least a C-X linkage wherein X is not C or H. Said C-X linkage may be a polar linkage. X may be N, S, F, Cl or O atom.

[0073] The hotmelt adhesive may result of a condensation reaction.

[0074] The adhesive perfume delivery material comprises a perfume. In the sense of the invention, the term perfume also includes flavours. The adhesive perfume delivery material may comprise from 10 to 90% or from 20 to 80%, for example from 30 to 70%, by weight of perfume.

[0075] The perfume may comprise at least one or two, or at least five or even at least ten perfume component, which are typically blended together to obtain a perfume that has a particular desired odour. The perfume is typically a selection of perfume component that are blended together to obtain a particular perfume accord such as a fruity perfume accord. The perfume can be formulated to provide any olfactory perception that is desired. For example, the perfume can be a light floral fragrance a fruity fragrance or a woody or earthy fragrance.

[0076] The perfume component(s) may have an Odour Detection Threshold (ODT) of less than 50 parts per billion (ppb), preferably less than 10ppb. The ODT refers to the value commonly used in the perfumery arts and is the lowest concentration at which significant odour detection takes place that the perfume component is present. A method of calculating ODT is described in WO97/11151, especially from page 12, line 10 to page 13, line 4.

[0077] Typical perfume components suitable for use are selected from the group consisting of aldehydes, ketones, esters, alcohols, propionates, salicylates, ethers and combinations thereof. Typically, the perfume components are liquid, especially at ambient temperature and pressure. Usually, the perfume components are synthetic molecules. Alternatively, the perfume components can be derived from animals or plants. Preferred perfume and perfume components are described in more detail in WO97/11151, especially from page 8, line 18 to page 11, line 25.

[0078] Typically, the perfume comprises perfume components having a boiling point of less than 300°C. Typically, the perfume comprises at least 50wt%, more preferably at least 75wt%, of perfume components that have a boiling point of less than 300°C. The perfume components may have an octanol/water partition coefficient (ClogP) value greater than 1.0. A method of calculating ClogP is described in WO97/11151, especially from page 11, line 27 to page 12, line 8.

[0079] The adhesive perfume delivery material may also comprise plasticizers, solvents and/or fillers. The adhesive perfume delivery material, in particular when comprising a hotmelt adhesive, may also comprise a tackifier and/or a plasticizer. The adhesive perfume delivery material may comprise from 5 to 60%, for example from 10 to 50%, or from 15 to 40%, by weight of tackifier and/or a plasticizer.

[0080] The tackifier and/or plasticizer may improve the flow of adhesion of the adhesive perfume delivery material to the package and/or may address migration. The adhesive perfume delivery material, in particular when comprising a hotmelt adhesive, may comprise synthetic hydrocarbons, polybutene, natural terpenes, rosins, low molecular weight polyesters, polyethers, liquid rosin esters, aromatic sulfoamides, phtalates, benzoates, sucrose esters, derivatives of polyfunctional alcohols (where polyfunctional means having 2 or more hydroxyl groups), adipates, tartrates sebacates, esters of phosphoric acid, fatty acids and diacidsm fatty alcohols and diols, and/or mixtures thereof. The adhesive perfume delivery material, in particular when comprising a hotmelt adhesive, may comprise one or more wax(es) for example to lower its melt viscosity an/or to improve the wetting out of the package. The hotmelt adhesive may result of a condensation reaction.

[0081] The adhesive perfume delivery material may comprise ingredients to improve the processability, the mechanical characteristics, the tackiness, the resistance to ageing by light, oxygen and heat, and the visual appearance of the adhesive perfume delivery material. The adhesive perfume delivery material may comprise copolymers of styrene and at least one other vinyl or acrylic monomer, copolymers of poly(vinyl alcohol), polyamides, polyether amide copolymers, polyester amide copolymers, polyesters, polyether ester copolymers, polyurethanes, polyethers, poly(2- ethyl 2-oxazoline), copolymers of poly(vinyl pyrrolidone), polyacrylates, copolymers of polyvinyl ethers), and/or mixture thereof.

[0082] The adhesive perfume delivery material may be prepared by techniques well known to the skilled person. For example, when the adhesive perfume delivery material comprises a hotmelt adhesive, a perfume, and optionally a plasticizer, can be blended together as a thermoplastic material. The resulting melt can then be dispersed in water, preferably at a temperature above its melting point, by mixing. Surfactant and/or stabilizing systems known to those skilled in the art can be employed to stabilize the resultant emulsion or dispersion. Alternatively, a preformed aqueous dispersion or emulsion of a hotmelt adhesive can be blended with a perfume and an optional plasticizer. This can be done by adding the perfume and the optional plasticizer directly to the hotmelt adhesive dispersion or emulsion, or by forming an aqueous dispersion of the perfume and the optional plasticiser and blending this with the hotmelt adhesive dispersion or emulsion.

[0083] The adhesive perfume delivery material may be applied to an internal wall of the package by techniques well known to the skilled person. For example, when the adhesive perfume delivery material comprises a hot melt adhesive, the adhesive perfume delivery material may be melted at a temperature to have a processable viscosity, pumped through the length of a hose until it reaches a glue gun or nozzle, and applied to an internal wall of the package of the product.

The package

[0084] The product of the invention comprises a package at least partially separating the particulate composition and the perfume delivery material from the external environment. The package at least partially separates a space inside the package from the external environment. The space inside the package comprises the particulate composition and the perfume delivery material. The package may be closed or substantially closed. The space inside the package, the particulate composition, and the perfume delivery material may be fully or substantially separated from the external environment. The package may noticeably reduce the transfers of fluids between the space inside the package and the external environment. Preferably, the space inside the package and the external environment are not in fluid communication. The part of the package which is facing the space inside the package is the internal wall of the package. The part of the package which is facing the external environment is the external wall of the package. The adhesive perfume delivery material is adhered to an internal wall of the package.

[0085] Preferably, the particulate composition and the adhesive perfume delivery material are in fluid communication inside the package.

[0086] The package may be a bag, for example a bag comprising polyethylene, or a box, for example a box comprising cardboard, or a bottle. The package may be closed in an air-tight way. The package may comprise devices to open and/or reclose the package. Devices to open and/or reclose the package include the cap of a bottle, pivoting wall panels of a box, hoop and loops fasteners.

[0087] The devices to open and/or reclose the package may be on the upper part of the package.

The adhesive perfume delivery material may be adhered on the upper part of the package. The upper part of the package may be the part of the package which is not in contact with the particulate composition when opening the package of the product.

The Process

[0088] As indicated above, the present invention also concerns the process of manufacturing a product according to the invention comprising at least the two following steps in any order:

a- filling of the package with the particulate composition,
b- adhering the adhesive perfume delivery material onto an internal wall of the package,

wherein the time lapse between step a and step b is of less than 7 days, in particular of less than 1 day, for example of less than 2 hours.

[0089] The process of manufacturing may also comprise an additional step of closing the product. The step of closing the product may comprise a gluing step. In particular if the gluing step involves some adhesive perfume delivery material, in particular a hotmelt adhesive, as a glue, the gluing step may be carried out at a temperature that do not substantially modifies the perfume, for example at a temperature of less than 150°C or 100°C or 80°C.

[0090] The product, for examples two top lids of a cardboard box, may be glued with part of the adhesive perfume delivery material.

Measurement of the odour intensity

[0091] To compare the odour intensity of two samples the odour intensity may be measured using a vapour analysis system.

[0092] The headspace of each sample may be collected via a Z Nose 4200 vapour analysis system from Electronic sensor technology (Newbury Park, CA, USA) using the method described in exercice 1 from the Znose training manual for example version dated 6/5/2007.

[0093] 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".

[0094] The following examples are given by way of illustration only and therefore should not be construed to limit the scope of the invention.

EXAMPLES

Example 1: Particulate compositions

[0095] The following particulate compositions are prepared.

	1A (wt%)	1B (wt%)	1C (wt%)	1D (wt%)	1E (wt%)	1F (wt%)
Linear alkylbenzenesulfonate	20	12	20	10	12	13
Other surfactants	1.6	1.2	1.9	3.2	0.5	1.2
Phosphate builder(s)	5	25	4	3	2	
Zeolite		1		1	4	1
Silicate	4	5	2	3	3	5
Sodium Carbonate	9	20	10	17	5	23
Polyacrylate (MW 4500)	1	0.6	1	1	1.5	1
Carboxymethylcelulose	1	0.3	0.3	0.1	1.1	0.9
enzymes	0.33	0.17	0.6	0.2	0.5	0.7
Fluorescent Brightener(s)	0.16	0.06	0.16	0.18	0.16	0.16
Diethylenetriamine pentaacetic acid or Ethylene diamine tetraacetic acid	0.6		0.6	0.25	0.6	0.6
$MgSO_4$	1	1	1	0.5	1	1

(continued)

	1A (wt%)	1B (wt%)	1C (wt%)	1D (wt%)	1E (wt%)	1F (wt%)
Bleach(es) and Bleach activator(s)	6.88		6.12	2.09	1.17	4.66
Sulfate/Moisture/perfume	Balance	Balance	Balance	Balance	Balance	Balance
Total	100	100	100	100	100	100

[0096] Those compositions 1A-1F comprise more than 60% by weight of the particulate composition of particles having a size of above 150 μm.

Example 2: Preparation of an adhesive perfume delivery material

[0097] 24.75 parts of Elvax® 250, a poly(ethylene-co-vinyl acetate) with a vinyl acetate content of 28 wt% and a melt flow index of 25 dg/min (ASTM D1238), available from Dupont, 9.75 parts of EscoreneTM Ultra MV 02528, a poly (ethylene-co-vinyl acetate) with a vinyl acetate content of 27.5 wt% and a melt viscosity at 190°C of 3100 cps (ExxonMobil method), available from ExxonMobil Chemical, 15 parts of ForalynTM 5020F, a rosin ester plasticiser available from Eastman Chemical and 0.5 parts of IrganoxTM B225, an antioxidant available from Ciba Geigy (Switzerland) are added to a sigma blade mixer and heated to a temperature of about 10- 20 °C above the melting point of the polymer (about 120 °C). The ingredients are mixed until a homogeneous mass was obtained. The temperature is then reduced to a point where the mixture is still molten, typically to about 10-20 °C above the melting point of the mixture (about 80 °C in the present case). 50 parts of benzyl acetate, a perfume material available from Sigma Aldrich, is added to the plasticised polymer mixture. The ingredients are mixed until a homogeneous mixture is obtained, and the resultant material is removed from the mixer, cooled to room temperature and is used as an adhesive perfume delivery material (hot melt adhesive).

Example 3: Product according to the invention

[0098] A cardboard box (approximatively 21cm x14.5cm x 5.5cm) is filed with about 950 g of the particulate composition of example 1.
The hotmelt adhesive of example 2 is applied with a hot melt applicator on the internal wall of the top panel of the cardboard box.
The package is sealed by gluing the two top lids of the cardboard box.

Claims

1. Product comprising:

- a particulate composition,
- an adhesive perfume delivery material,
- a package at least partially separating the product and the perfume delivery material from the external environment

wherein the adhesive perfume delivery material is adhered onto an internal wall of the package and wherein at least 60% by weight of the particulate composition has a particle size of above 150 μm.

2. Product according to claim 1, wherein at least 60% by weight of the particulate composition has a particle size of from 150 μm to 2000 μm, preferably from 300 μm to 600 μm.

3. Product according to any one of the preceding claims wherein at least 60% by weight of the particulate composition has a particle size of above 300 μm.

4. Product according to any one of the preceding claims wherein the particulate composition has a relative humidity value below 45%.

5. Product according to any one of the preceding claims wherein the particulate composition comprises at least 20%

by weight of chemical compounds which do not comprise C-H bonds.

6. Product according to any one of the preceding claims wherein the particulate composition comprises less than 20% by weight of surfactant.

7. Product according to any one of the preceding claims wherein the particulate composition comprises less than 5% by weight of alumino silicate builder.

8. Product according to any one of the preceding claims, wherein the particulate composition is a detergent composition, in particular a fabric care composition.

9. Product according to any one of the preceding claims, wherein the package is a box comprising cardboard.

10. Product according to any one of the preceding claims, wherein the adhesive perfume delivery material is adhered on the upper part of the package.

11. Product according to any one of the preceding claims, wherein the adhesive perfume delivery material is a hot melt adhesive.

12. Process of manufacturing a product according to any one of the preceding claims, comprising at least the two following steps in any order:

    a- filling of the package with the particulate composition
    b- adhered the adhesive perfume delivery material onto an internal wall of the package,

wherein the time lapse between step a and step b is of less than 7 days, in particular of less than 1 day, for example of less than 2 hours.

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EUROPEAN SEARCH REPORT

Application Number
EP 09 15 1110

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Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (IPC)
X	FR 2 876 673 A1 (EMBATHERM OPERCULES SARL [FR]) 21 April 2006 (2006-04-21) * the whole document *	1-12	INV. A45D40/00
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The present search report has been drawn up for all claims

Place of search	Date of completion of the search	Examiner
Munich	7 July 2009	Acerbis, Giorgio

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