

Description

FIELD OF THE INVENTION

- 5 **[0001]** A consumer product comprising a container and at least one water-soluble unit dose article wherein the container contains an adhesive strip comprising a perfume.

BACKGROUND OF THE INVENTION

- 10 **[0002]** Water-soluble unit dose articles are liked by consumers as they offer convenience and ease to the laundry process. Without wishing to be bound by theory, the water-soluble unit dose article comprises a water-soluble film and a unitized dose of a laundry treatment composition which may be within one or more compartments within the unit dose article.

- 15 **[0003]** Such water-soluble unit dose articles are often sold to consumers in rigid or flexible recloseable containers. Other detergent compositions such as free-flowing powders and free flowing liquid are also traditionally sold in rigid or flexible recloseable containers. Such product forms have the benefit that upon opening the container the consumer can immediately smell the perfume material added as an ingredient to the cleaning composition. Consumers prefer such a 'perfume bloom' upon opening the container as it connotes the ability of the detergent to provide a fresh smell to the fabrics or surfaces cleaned with the detergent. Furthermore, the 'perfume bloom' can also prevent or reduce any malodor inside the container coming from a malodor generating ingredient in the detergent composition housed inside the container.

- 20 **[0004]** However, due to the nature of a water-soluble unit dose article, such a perfume bloom is less apparent. This is due to the detergent composition being surrounded by the water-soluble unit dose article. Previous attempts have been made to address this including WO2008038189 which discloses containers housing water-soluble unit dose articles and adhesive strips stuck to the interior of the container, e.g. substantially at the opening of said container. The adhesive strip comprises perfumes such that when the consumer opens the container, they can smell perfumes released from the adhesive strip.

- 25 **[0005]** However, an issue encountered with such adhesive strips was that they had limited longevity meaning after extended storage the scent bloom benefit was no longer apparent upon the consumers opening the container.

- 30 **[0006]** Therefore, there is a need for a consumer product comprising a container, water-soluble unit dose articles and an adhesive strip comprising perfume, wherein the scent longevity benefit from the adhesive strip is improved.

- [0007]** It was surprisingly found that placement of the adhesive strip at or near the bottom of the container as according to the present invention overcame this issue.

35 SUMMARY OF THE INVENTION

- [0008]** A consumer product comprising at least one water-soluble unit dose article and a container; wherein the container comprises an internal compartment wherein the internal compartment houses the at least one water-soluble unit dose article; and wherein the at least one water-soluble unit dose article comprises at least one water-soluble film and a detergent composition; wherein the container comprises a base, an opening, a lid moveable between an open position and a closed position and at least one wall and wherein the internal compartment is accessible via the opening; and wherein the opening is positioned opposite to the base, the at least one wall extends from the base to the opening; and wherein in the closed position the lid blocks access to the opening and in the open position the user has access to the opening; and wherein the base has an internal surface and an exterior surface and wherein the at least one wall has an internal surface and an exterior surface; and wherein the container comprises an adhesive strip stuck to the interior surface of the base, the interior surface of the at least one wall, or a mixture thereof, preferably to the base; and wherein, when stuck to the interior surface of the at least one wall the adhesive strip is positioned between the base and no more than 50% of the distance between the base and the opening; and wherein the adhesive strip comprises a perfume; and wherein the container is manufactured from plastic, wherein the plastic is rigid, flexible or a mixture thereof.

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BRIEF DESCRIPTION OF THE DRAWINGS

[0009]

- 55 FIG. 1. discloses a consumer product (1) according to the present invention comprising at least one water-soluble unit dose article (not shown) and a container (2) and a rectangular adhesive strip (12).

FIG.2. discloses a consumer product (1) as according to FIG. 1, but wherein the adhesive strip (12) is circular.

FIG. 3 discloses a consumer product (1) as according to FIG. 1 but wherein the adhesive strip (12) is stuck to the

interior surface (10) of the at least one wall (7).

FIG. 4 discloses a cross section of a container (2), wherein the base (4) comprises a trough (13) and a raised portion (14).

FIG. 5 discloses a water-soluble unit dose article according to the present invention.

DETAILED DESCRIPTION OF THE INVENTION

Consumer Product

[0010] The present invention is to a consumer product comprising at least one water-soluble unit dose article and a container, wherein the container comprises an adhesive strip comprising perfume. The water-soluble unit dose article, the container and the adhesive strip are described in more detail below.

[0011] The consumer product can be sold 'as is', in other words the consumer product is the item that the consumer picks up from the shelf. Alternatively, the consumer product could be housed as one unit of a multi-component product. For example, more than one consumer product could be housed within an outer package and the multiple packaged consumer products sold together in a single purchase.

[0012] The consumer product may comprise aesthetic elements, for example shrink sleeves or labels attached to the container. Alternatively, the container may be coloured or printed with aesthetic elements or informative print such as usage instructions.

Water-soluble unit dose article

[0013] The at least one water-soluble unit dose article comprises at least one water-soluble film orientated to create at least one unit dose internal compartment, wherein the at least one unit dose internal compartment comprises a detergent composition. The water-soluble film and the detergent composition are described in more detail below.

[0014] The consumer product comprises at least one water-soluble unit dose article, preferably at least two water-soluble unit dose articles.

[0015] A water-soluble unit dose article is generally in the form of a pouch. It comprises a unitary dose of a composition at a volume sufficient to provide a benefit in an end application.

[0016] The water-soluble unit dose article comprises at least one water-soluble film shaped such that the unit-dose article comprises at least one internal compartment surrounded by the water-soluble film. The at least one compartment comprises a cleaning composition. The water-soluble film is sealed such that the cleaning composition does not leak out of the compartment during storage. However, upon addition of the water-soluble unit dose article to water, the water-soluble film dissolves and releases the contents of the internal compartment into the wash liquor.

[0017] The unit dose article may comprise more than one compartment, even at least two compartments, or even at least three compartments, or even at least four compartments, or even at least five compartments. The compartments may be arranged in superposed orientation, i.e. one positioned on top of the other. Alternatively, the compartments may be positioned in a side-by-side orientation, i.e. one orientated next to the other. The compartments may even be orientated in a 'tyre and rim' arrangement, i.e. a first compartment is positioned next to a second compartment, but the first compartment at least partially surrounds the second compartment, but does not completely enclose the second compartment. Alternatively, one compartment may be completely enclosed within another compartment.

[0018] Wherein the unit dose article comprises at least two compartments, one of the compartments may be smaller than the other compartment. Wherein the unit dose article comprises at least three compartments, two of the compartments may be smaller than the third compartment, and preferably the smaller compartments are superposed on the larger compartment. The superposed compartments preferably are orientated side-by-side.

[0019] Each individual unit dose article may have a weight of between 10g and 40g, or even between 15g and 35g.

[0020] Preferably, the at least one water-soluble unit dose article has a height, a width and a length wherein the height is between 1cm and 4cm, the width is between 2cm and 7cm, and the length is between 2cm and 7cm.

[0021] The film of the present invention is soluble or dispersible in water. Prior to being formed into a unit dose article, the water-soluble film preferably has a thickness of from 20 to 150 micron, preferably 35 to 125 micron, even more preferably 50 to 110 micron, most preferably about 76 micron.

[0022] Preferred film materials are polymeric materials. The film material can, for example, be obtained by casting, blow-moulding, extrusion or blown extrusion of the polymeric material, as known in the art.

[0023] Preferably, the water-soluble film comprises polyvinyl alcohol polymer or copolymer, preferably a blend of polyvinylalcohol polymers and/or polyvinylalcohol copolymers, preferably selected from sulphonated and carboxylated anionic polyvinylalcohol copolymers especially carboxylated anionic polyvinylalcohol copolymers, most preferably a blend of a polyvinylalcohol homopolymer and a carboxylated anionic polyvinylalcohol copolymer.

[0024] Preferred films are those supplied by Monosol under the trade references M8630, M8900, M8779, M8310.

[0025] The film may be opaque, transparent or translucent. The film may comprise a printed area.

[0026] The area of print may be achieved using standard techniques, such as flexographic printing or inkjet printing.

[0027] The film may comprise an aversive agent, for example a bittering agent. Suitable bittering agents include, but are not limited to, naringin, sucrose octaacetate, quinine hydrochloride, denatonium benzoate, or mixtures thereof. Any suitable level of aversive agent may be used in the film. Suitable levels include, but are not limited to, 1 to 5000ppm, or even 100 to 2500ppm, or even 250 to 2000rpm.

[0028] The water-soluble film or water-soluble unit dose article or both may be coated in a lubricating agent. Preferably, the lubricating agent is selected from talc, zinc oxide, silicas, siloxanes, zeolites, silicic acid, alumina, sodium sulphate, potassium sulphate, calcium carbonate, magnesium carbonate, sodium citrate, sodium tripolyphosphate, potassium citrate, potassium tripolyphosphate, calcium stearate, zinc stearate, magnesium stearate, starch, modified starches, clay, kaolin, gypsum, cyclodextrins or mixtures thereof.

[0029] The detergent composition may be a laundry detergent composition, an automatic dishwashing composition, a hard surface cleaning composition or a combination thereof. The detergent composition may comprise a solid, a liquid, or a mixture thereof. The term liquid includes a gel, a solution, a dispersion, a paste or a mixture thereof.

[0030] By powder we herein mean the laundry detergent composition may comprise solid particulates or may be a single homogenous solid. Preferably, the powder detergent composition comprises particles. This means the powder detergent composition comprises individual solid particles as opposed to the solid being a single homogenous solid. The particles may be free-flowing or may be compacted, preferably free-flowing.

[0031] Preferably, the detergent composition is a laundry detergent composition, most preferably a liquid laundry detergent composition.

[0032] The laundry detergent composition can be used in a fabric hand wash operation or may be used in an automatic machine fabric wash operation, preferably an automatic machine fabric wash operation.

[0033] The laundry detergent composition comprises a non-soap surfactant, wherein the non-soap surfactant comprises an anionic non-soap surfactant and a non-ionic surfactant. Preferably, the laundry detergent composition comprises between 10% and 60%, more preferably between 20% and 55% by weight of the laundry detergent composition of the non-soap surfactant.

[0034] The weight ratio of non-soap anionic surfactant to nonionic surfactant is from 1:1 to 20:1, preferably from 3:1 to 17.5:1, more preferably from 5:1 to 15:1, most preferably from 7.5:1 to 12.5:1.

[0035] The non-soap anionic surfactant comprises linear alkylbenzene sulphonate, alkyl sulphate or a mixture thereof. The weight ratio of linear alkylbenzene sulphonate to alkyl sulphate is from 1:2 to 9:1, preferably from 1:1 to 7:1, more preferably from 1.25:1 to 5:1, most preferably from 1.4:1 to 3:1.

[0036] Exemplary linear alkylbenzene sulphonates are C₁₀-C₁₆ alkyl benzene sulfonic acids, or C₁₁-C₁₄ alkyl benzene sulfonic acids. By 'linear', we herein mean the alkyl group is linear. Alkyl benzene sulfonates are well known in the art.

[0037] The alkyl sulphate anionic surfactant may comprise alkoxyated alkyl sulphate or non-alkoxyated alkyl sulphate or a mixture thereof. The alkoxyated alkyl sulphate anionic surfactant preferably is an ethoxyated alkyl sulphate anionic surfactant.

[0038] The alkyl sulphate anionic surfactant may comprise an ethoxyated alkyl sulphate anionic surfactant, preferably with a mol average degree of ethoxylation from 1 to 5, more preferably from 1 to 3, most preferably from 2 to 3.

[0039] The alkyl sulphate anionic surfactant may comprise a non-ethoxyated alkyl sulphate and an ethoxyated alkyl sulphate wherein the mol average degree of ethoxylation of the alkyl sulphate anionic surfactant is from 1 to 5, more preferably from 1 to 3, most preferably from 2 to 3.

[0040] The alkyl fraction of the alkyl sulphate anionic surfactant can preferably be derived from fatty alcohols, oxo-synthesized alcohols, guerbet alcohols, or mixtures thereof.

[0041] Preferably, the laundry detergent composition comprises between 10% and 50%, more preferably between 15% and 45%, even more preferably between 20% and 40%, most preferably between 30% and 40% by weight of the laundry detergent composition of the non-soap anionic surfactant.

[0042] Preferably, the non-soap non-ionic surfactant is selected from alcohol alkoxyate, an oxo-synthesized alcohol alkoxyate, Guerbet alcohol alkoxyates, alkyl phenol alcohol alkoxyates or a mixture thereof.

[0043] The laundry detergent composition comprises between 0.01% and 10%, preferably between 0.01% and 8%, more preferably between 0.1% and 6%, most preferably between 0.15% and 5% by weight of the liquid laundry detergent composition of a non-ionic surfactant.

[0044] Preferably, the laundry detergent composition comprises between 1.5% and 20%, more preferably between 2% and 15%, even more preferably between 3% and 10%, most preferably between 4% and 8% by weight of the laundry detergent composition of soap, preferably a fatty acid salt, more preferably an amine neutralized fatty acid salt, wherein preferably the amine is an alkanolamine more preferably selected from monoethanolamine, diethanolamine, triethanolamine or a mixture thereof, more preferably monoethanolamine.

[0045] Preferably, the laundry detergent composition is a liquid laundry detergent composition, more preferably the liquid laundry detergent composition comprises less than 15%, more preferably less than 12% by weight of the liquid

laundry detergent composition of water.

[0046] Preferably, the laundry detergent composition is a liquid laundry detergent composition comprising a non-aqueous solvent selected from 1,2-propanediol, dipropylene glycol, tripropyleneglycol, glycerol, sorbitol, polyethylene glycol or a mixture thereof. Preferably, the liquid laundry detergent composition comprises between 10% and 40%, preferably between 15% and 30% by weight of the liquid laundry detergent composition of the non-aqueous solvent.

[0047] Preferably the laundry detergent composition comprises a perfume.

[0048] Preferably, the laundry detergent composition comprises an adjunct ingredient selected from the group comprising builders including enzymes, citrate, bleach, bleach catalyst, dye, hueing dye, brightener, cleaning polymers including alkoxyated polyamines and polyethyleneimines, soil release polymer, surfactant, solvent, dye transfer inhibitors, chelant, encapsulated perfume, polycarboxylates, structurant, pH trimming agents, and mixtures thereof.

[0049] Those skilled in the art will know how to formulate and make a suitable detergent composition using known knowledge and techniques. The detergent composition may comprise common detergent ingredients including surfactants, polymers, bleach, enzymes, perfumes, dyes, structing agents, fillers, water or a mixture thereof.

[0050] Those skilled in the art will be aware of known techniques to make a water-soluble unit dose article according to the present invention.

Container

[0051] A consumer product comprises a container. The container comprises an internal compartment, wherein the internal compartment houses the at least one water-soluble unit dose article.

[0052] The container comprises a base. Without wishing to be bound by theory, the base should be understood to be the part of the container designed to rest on a surface when the container is not in use. The base may have any suitable shape. The base may be rectangular, square, triangular, oval or circular, preferably rectangular. The base has an internal surface and an exterior surface. Without wishing to be bound by theory, the internal surface faces the internal compartment and the exterior surface is positioned on the exterior of the container.

[0053] The container comprises an opening. The internal compartment is accessible via the opening. Those skilled in the art will be aware of suitable size and shape for the opening. Preferably, the opening is of a size sufficient for the user to fit their hand through to retrieve the at least one water-soluble unit dose article from the internal compartment. The opening may be rectangular, square, triangular, oval or circular, preferably rectangular.

[0054] The internal compartment houses the at least one water-soluble unit dose article. The internal compartment may comprise between 1 and 100 water-soluble unit dose articles, or even between 5 and 85 water-soluble unit dose articles, or even between 10 and 65 water-soluble unit dose articles, or even between 1 and 20 water-soluble unit dose articles.

[0055] Preferably, the internal compartment has a volume of between 0.25L and 5L, preferably between 0.5L and 4L, more preferably between 0.75L and 3.5L.

[0056] The container comprises a lid. The lid is moveable between an open position and a closed position. In the closed position the lid blocks access to the opening and in the open position the user has access to the opening. Those skilled in the art will be aware of suitable sizes and shapes for the lid in order for it to block access to the opening when in a closed position. The lid may be rectangular, square, triangular, oval or circular, preferably rectangular. The lid may be connected to the container via any suitable means. The lid may be connected to the container via a hinge. Those skilled in the art will be aware of suitable hinge mechanisms. The lid may be a screw on lid.

[0057] Without wishing to be bound by theory, when in the open position the lid should be understood to not create an obstacle to access to the internal compartment. However, even when the lid is in the open position, the opening may still be at least partially obstructed. For example the obstruction may be in the form of a flexible label or a removable curtain.

[0058] The container may comprise at least one wall. The opening is positioned opposite to the base and the at least one wall extends from the base to the opening. Without wishing to be bound by theory the container may comprise more than one wall. If the base and opening are both oval or circular, then they are connected via a single wall. However, if the base and opening are both square or rectangular then the container may comprise four walls. Preferably the container comprises at least three walls, more preferably at least four walls.

[0059] The at least one wall preferably has a height of between 5cm and 50cm, preferably between 7cm and 30 cm, more preferably between 10cm and 25cm.

[0060] The at least one wall has an internal surface and an exterior surface. Without wishing to be bound by theory, the internal surface faces the internal compartment and the exterior surface is positioned on the exterior of the container.

[0061] The at least one wall may be straight, curved or a mixture thereof.

[0062] The lid may comprise a rim which attaches to the top of the at least wall, and wherein the lid is attached via the hinge to the rim. Alternatively, the lid may attach via the hinge directly to the at least one wall.

[0063] The container comprises an adhesive strip. The adhesive strip is described in more detail below. The adhesive strip is stuck to the interior surface of the base, the interior surface of the at least one wall, or a mixture thereof. Preferably,

the adhesive strip is stuck to the interior surface of the base.

[0064] When stuck to the interior surface of the at least one wall, the adhesive strip is positioned between the base and no more than 50%, preferably no more than 40%, more preferably no more than 30%, even more preferably no more than 20%, most preferably no more than 10% of the distance between the base and the opening. In other words,

the adhesive strip is based in the lower part of the internal compartment closer to the base than to the opening.

[0065] The container is manufactured from plastic, wherein the plastic is rigid, flexible or a mixture thereof. Preferably, the container is manufactured from rigid plastic. Preferably the lid is manufactured from rigid plastic. Without wishing to be bound by theory, rigid plastic should be understood to mean that the plastic material may be deformable when pressure is applied by the user, but the plastic reverts back to its original shape. Preferably, the plastic material has a tensile modulus ranging from 1250MPa to 3000MPa, preferably between 1300MPa and 2300MPa. Those skilled in the art will know how to measure tensile modulus using techniques commonly known in the art.

[0066] Wishing to be bound by theory adhesive strips according to the present invention, preferably hot melt adhesives according to the present invention, have been found to have good adherence properties to plastic material.

[0067] Preferably, the plastic material is a polyolefin. More preferably, the plastic material is selected from polypropylene, polystyrene, polyethylene, high-density polyethylene, polyethylene terephthalate, polyvinyl chloride, Acrylonitrile Butadiene Styrene, Polycarbonates, Polyamides or a mixture thereof, most preferably from polypropylene, polystyrene, high-density polyethylene, polyethylene terephthalate, or a mixture thereof. The plastic material may have a tensile modulus ranging from 1250MPa to 3000MPa, preferably between 1300MPa and 2300MPa. Those skilled in the art will know how to measure tensile modulus using techniques commonly known in the art.

[0068] The base may comprise a trough and a raised portion. Without wishing to be bound by theory, the trough provides the benefit of acting as a reservoir in case detergent composition accidentally leaks out of the water-soluble unit dose article ahead of use. In the reservoir, there is less chance of the detergent accidentally contaminating other water-soluble unit dose articles in the container. The adhesive strip may be stuck to the interior surface of the base in the trough, in the raised portion or a mixture thereof, preferably in the trough. Without wishing to be bound by theory, it is preferred to be positioned in the trough as this minimizes contact between the adhesive strip and the at least one water-soluble unit dose article.

[0069] Preferably, the container comprises a locking means, more preferably a child resistant locking means. Most preferably, the locking means comprises a hook member on the exterior surface of the at least one wall and a receiving member on the lid wherein in the closed position the hook member engages the receiving member.

Adhesive strip

[0070] The adhesive strip can be any size or shape. Those skilled in the art will be aware of suitable sizes and shapes and how the appropriate choice of size and shape can contribute to the perfume release kinetics profile from the adhesive strip, for example, the larger the adhesive strip-air contact area the higher the perfume intensity build-up and the shorter the perfume longevity profile. Preferably, the adhesive strip is between 0.01g and 5g, preferably between 0.05g and 2g, more preferably between 0.1g and 1g, most preferably between 0.2g and 0.5g. The adhesive strip may be rectangular, square, oval, circular or a mixture thereof.

[0071] Preferably, the adhesive strip is a hot melt adhesive strip.

[0072] The adhesive strip comprises a perfume. Preferably, the adhesive strip comprises between 10% and 80%, preferably between 20% and 70%, more preferably between 30% and 60%, most preferably between 40% and 55% by weight of the adhesive strip of the perfume.

[0073] Preferably, the adhesive strip comprises a copolymer of ethylene with at least another monomer comprising at least a heteroatom. All copolymers of ethylene with at least another monomer comprising at least a heteroatom are suitable for use herein. The copolymer of ethylene with at least another monomer comprising at least a heteroatom should be understood to also include blends of copolymers. The copolymer of ethylene with at least another monomer comprising at least a heteroatom is preferably present from 10% to 80%, more preferably from 15% to 60%, even more preferably from 20% to 50%, most preferably from 20% to 30% by weight of the adhesive strip.

[0074] The term "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 is preferably a polar linkage. Preferably the carbon atom is linked to an N, S, F, Cl or O atom. More preferably said polar linkage is part of a carbonyl group and, more preferably, of an ester group. Preferred monomers comprising at least a heteroatom for the present invention are vinyl acetate, vinyl alcohol, methyl acrylate, ethyl acrylate, butyl acrylate, acrylic acid and salts formed therefrom, methacrylic acid and salts formed therefrom, maleic anhydride, glycidyl methacrylate and carbon monoxide. Suitable copolymers for use herein can be both block and non-block copolymers, grafted copolymers, copolymers with side chains, crosslinked copolymers and copolymers where ethylene monomers are randomly copolymerized with monomers comprising at least a heteroatom. Preferred copolymers of ethylene include ethylene-vinyl ester copolymers, ethylene-acrylic ester copolymers, ethylene-methacrylic ester copolymers, ionomers, ethylene-acrylic acid copolymers, ethylene-methacrylic acid copoly-

mers, ethylene-vinyl ester-acrylic acid copolymers, vinyl ester-methacrylic acid copolymers, ethylene-vinyl ester-maleic anhydride copolymers, ethylene-acrylic ester-maleic anhydride copolymers, ethylene-vinyl ester-glycidyl methacrylate copolymers, ethylene-acrylic ester-glycidyl methacrylate copolymers, ethylene-maleic anhydride copolymers, ethylene-glycidyl methacrylate copolymers and mixtures thereof. More preferably the copolymer is an ethylene-vinyl ester copolymer or an ethylene-acrylic ester copolymer, most preferably an ethylene - vinyl acetate copolymer. The monomer comprising at least a heteroatom in the copolymers suitable for the present invention preferably represents from 10% to 80%, preferably from 15% to 60%, more preferably from 20% to 40% of the total weight of the copolymer. Particularly preferred copolymers include ethylene-vinyl acetate copolymers such as those sold under the trade names Elvax™ by Dupont, Evathane™ by Atofina, Escorene™ by Exxon and Levapren™ and Levamelt™ by Bayer, and ethylene-acrylic ester copolymers such as those sold under the trade name LotryP™ by Atofina. Most preferred copolymers for use are ethylene - vinyl acetate copolymers sold under the trade name Elvax™ from Dupont, especially Elvax™ 250, Elvax™ 265, Elvax™ 40W, and mixtures thereof, most preferably Elvax™ 250. Elvax™ 250, a poly(ethylene-co-vinyl acetate) with a vinyl acetate content of 28 wt%, a density of 0.95 g/cm³ (ASTM D792), a melting point of 70°C (ASTMD3418), a melt flow rate (190°C/2.16kg) of 25 g/10min (ASTM D1238) and a Vicat Softening Point of 42 °C (ASTM D1525).

[0075] Preferably, the adhesive strip comprises a plasticizer. The plasticizer should be understood to include mixtures of plasticizers. Preferably, the plasticizer comprises at least one heteroatom, wherein the heteroatom is compatible with the copolymer of ethylene with at least another monomer comprising at least a heteroatom. The term "plasticizer comprising at least a heteroatom" includes all those plasticizers which comprise at least a C-X linkage in the molecule wherein X is not C or H. Said C-X linkage is preferably a polar linkage. Preferably the carbon atom is linked to a N, S, F, Cl or O atom. More preferably said polar linkage is part of a carbonyl group and, more preferably, of an ester group. The plasticizer is preferably present in the adhesive strip between 1% and 50%, preferably between 2% to 35%, more preferably between 3 and 25%, most preferably between 4% and 10% by weight of the adhesive strip. The different polarity of the different compatible plasticisers (measurable with any method known to those skilled in the art, for example water/octanol partition coefficient) can be used to tune the polarity of the polymeric matrix in order to provide a better match with the polarity of the volatile perfume material. Suitable plasticizers for use herein include citric acid esters, low molecular weight polyesters, polyethers, liquid rosin esters, aromatic sulfonamides, phthalates, 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 diacids, fatty alcohols and diols, epoxidized vegetable oils, and mixtures thereof. Preferably the plasticizer is an ester compound, more preferably selected from citric acid esters and liquid rosin esters, most preferably liquid rosin esters. Suitable plasticizers for use are Citrofol™ BII (tributyl O-acetylcitrate, ATBC) and Foralyn™ 5020-F (methyl ester of hydrogenated rosin, Eastman), preferably Foralyn™ 5020-F.

[0076] The polymeric adhesive strip may comprise additional optional components to further improve the processability of the compositions and also the mechanical characteristics as well as other characteristics as tackiness, resistance to ageing by light, oxygen and heat, visual appearance of the objects formed from such polymeric compositions. One such optional component may include other copolymers that can be included in the formulations to improve their properties for example to increase adhesion or compatibility with substrates, e.g. so called tackifiers.

[0077] The adhesive strip may comprise a tackifier. Preferably, the adhesive strip comprises between 1% and 50%, preferably between 2% and 35%, more preferably between 3-25%, most preferably between 10 and 20% by weight of the adhesive strip of a tackifier. Preferably, the tackifier is selected from 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), hydrocarbon resins, hydrogenated rosins, and mixtures thereof. Suitable tackifiers include Kristalex™ F85 (hydrocarbon resin, Eastman) and Foral™ AX-E (fully hydrogenated rosin, Eastman), preferably Kristalex™ F85.

[0078] The adhesive strip may comprise an antioxidant, preferably in an amount between 0.001% and 1%, preferably between 0.01% and 0.5%, more preferably between 0.05% and 0.25%, most preferably between 0.075% and 0.15% by weight of the adhesive strip. Most preferred antioxidants include phenolic antioxidants and mixtures thereof. Suitable antioxidants include Irganox™ 1076 (Octadecyl-3-(3,5-di-tert-butyl-4-hydroxyphenyl)-propionate, BASF) and Irganox™ B225 (a blend of 50% Irgafos™ 168 - Tris(2,4-di-tert-butylphenyl)phosphite and 50% Irganox™ 1010 - Pentaerythritol tetrakis(3-(3,5-di-tert-butyl-4-hydroxyphenyl)propionate), BASF), most preferably Irganox™ 1076.

[0079] Preferably, the adhesive strip comprises between 40% and 55% of a perfume, between 20% and 30% of an ethylene - vinyl acetate copolymer, between 4% and 10% of a plasticizer, between 10% and 20% of a tackifier and between 0.075% and 0.15% of an antioxidant, all % by weight of the adhesive strip.

[0080] Those skilled in the art will be well aware of how to make an adhesive strip according to the present invention.

[0081] The preferred hot melt adhesive compositions for use herein, due to their rheology and to their adhesion properties, are particularly useful to be applied in the molten state onto a selected substrate, and directly adhered thereto. For example they can be readily applied to the inner surface of the plastic container. Such application can be easily

achieved during the manufacturing of the container. The polymeric composition can be applied by means of a conventional hot melt delivery system. This system typically includes a melting unit, which maintains the hot melt at the temperature required to have a processable viscosity. The melting unit typically contains a pumping system capable of pumping the hot melt through a length of hose until it reaches the glue gun, or nozzle. The nozzle can have different geometries according to the desired application form of the glue (coatings, stripes, beads etc). Typically, a slot nozzle can be used as the glue gun.

[0082] FIG. 1. discloses a consumer product (1) according to the present invention comprising at least one water-soluble unit dose article (not shown) and a container (2) (internal lines shown dotted). The container (2) comprises an internal compartment (3) wherein the internal compartment (3) houses the at least one water-soluble unit dose article (not shown). The container (2) comprises a base (4), an opening (5), a lid (6) moveable between an open position and a closed position wherein the internal compartment (3) is accessible via the opening (5). The opening (5) is positioned opposite to the base (4), the at least one wall (7) extends from the base (4) to the opening (5). The container (2) in FIG. 1 comprises 4 walls. In the closed position the lid (6) blocks access to the opening (5) and in the open position the user has access to the opening (5). The base (4) has an internal surface (8) and an exterior surface (9) and the at least one wall (7) has an internal surface (10) and an exterior surface (11). The container (2) comprises an adhesive strip (12) stuck to the interior surface (8) of the base (4). The adhesive strip (12) is rectangular in shape.

[0083] FIG.2. discloses a consumer product (1) as according to FIG. 1, but wherein the adhesive strip (12) is circular.

[0084] FIG. 3 discloses a consumer product (1) as according to FIG.1 but wherein the adhesive strip (12) is stuck to the interior surface (10) of the at least one wall (7). The adhesive strip (12) is positioned no more than 50% of the distance between the base (4) and the opening (5).

[0085] FIG. 4 discloses a cross section of a container 2, wherein the base (4) comprises a trough (13) and a raised portion (14), and wherein the adhesive strip (12) is stuck to the interior surface (8) of the base (4) in the trough (13).

[0086] FIG. 5 discloses a water-soluble unit dose article according to the present invention. The water-soluble unit dose article (300) comprises a first water-soluble film (301) and a second water-soluble film (302) which are sealed together at a seal region (303). A detergent composition, preferably a laundry detergent composition (304) is comprised within the water-soluble soluble unit dose article (300).

[0087] 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."

EXAMPLES

[0088] The impact of the position of a perfume comprising adhesive strip inside a container comprising water soluble unit dose articles on perfume longevity inside the container has been assessed using the test method described herein. The test has been conducted on perfume comprising as well as nil perfume water soluble unit dose articles.

Materials :

Adhesive strip :

[0089] The following composition has been formulated into a perfumed hot melt adhesive composition.

Table 1 : Perfumed hot melt adhesive composition

Component	Common Name	Manufacturer	Target content (w/w %)
Perfume			50
Copolymer	Elvax 250	DuPont	26.9
Tackifier	Kristalex F85	Eastman	15
Plasticizer	Foralyn 5020F	Eastman	8
Antioxidant	Irganox 1076	BASF	0.1

Water soluble unit dose article :

[0090] The following detergent composition has been formulated inside a multi-compartment water soluble unit dose

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article, comprising 2 small side by side compartments superposed on a large bottom compartment (footprint excluding flange : 43mm * 41mm), similar to the Ariel Pods water soluble unit dose article design, as commercialized by the Procter & Gamble company in the UK in January 2019. The water-soluble film comprises polyvinyl alcohol polymer more particularly a blend of a polyvinylalcohol homopolymer and a carboxylated anionic polyvinylalcohol copolymer.

Table 2 : Unit dose detergent composition

Raw Material	Detergent composition (wt%)		
	Bottom compartment	Top compartment 1	Top compartment 2
# ml	20.5	1.6	1.6
Anionic surfactant (C25 HAE2.5S)	15.4	11.1	10.1
Anionic surfactant (HLAS)	22.5	22.1	20.3
Nonionic surfactant (Lutensol XL 100)	0.5	-	-
Nonionic surfactant (C24-7)	4.0	2.8	1.7
Palm Kernel Fatty Acid	6.3	4.7	4.3
Citric Acid	0.7	0.6	0.6
DiPropyleneGlycol (DPG)	4.0	0.7	0.7
Glycerine	4.0	7.9	7.9
Propanediol	11.4	20.4	23.7
Water	10.0	10.7	10.6
HEDP chelant	2.4	2.0	1.8
Ethoxylated polyethyleneimine (PEI600EO20 - Lutensol FP620)	3.4	1.4	1.3
Amphiphilic graft copolymer ¹	2.6	-	-
Anionic polyester terephthalate (Texcare SRA 300)	-	2.9	5.8
Zwitterionic polyamine (Lutensit Z96)	-	1.6	1.5
Brightener 49	0.4	-	-
Monoethanolamine (MEA)	10.6	9.1	8.4
Minors (incl. enzymes, anti-foam, anti-oxidant, preservatives, perfume / nil perfume, dyes,...)	1.9	2.0	1.4
¹ polyethylene glycol graft polymer comprising a polyethylene glycol backbone (Pluriol E6000) and hydrophobic vinyl acetate side chains, comprising 40% by weight of the polymer system of a polyethylene glycol backbone polymer and 60% by weight of the polymer system of the grafted vinyl acetate side chains.			

Glass container :

[0091]

- Commercially available from VWR under code MUEL14.027.64
- Diameter : 97.3 mm
- Height: 135 mm

Test set-up :**[0092]**

- Water soluble unit dose articles have been staggered in multiple rows inside the glass container, more particularly, 2 pouches have been aligned side by side and positioned on the bottom of the glass container. A second row of 2 side by side aligned pouches has been positioned orthogonally on top of the first row, a third row of 2 side by side aligned pouches has been positioned orthogonally on top of the second row (hence parallel to the first row), and so forth; unit dose articles in all rows being positioned with the large base compartment in downwards direction and the superposed smaller compartments in upwards direction. Each glass container contained 6 rows of unit dose articles.
- A perfume comprising adhesive strip (weight : 0.8 ± 0.1 g - dimensions : 11 x 11 x 11 mm) has been applied to the inner side of an open glass cylinder (diameter: 15 mm, length: 45 mm), this to avoid direct contact between the water soluble unit dose articles and the perfumed adhesive strip, and the glass cylinder has been horizontally positioned respectively under the first row in between the 2 side by side aligned water soluble unit dose articles, and on top of the top row in between the 2 side by side aligned water soluble unit dose articles.
- The glass container was closed with a metal lid having a hole (dimensions: 6 mm diameter) in the center to allow for eventual perfume migration outside the glass container.
- The glass containers were put on storage for 35 days at 25°C / 60% relative humidity and the starting weight and end weight of the perfume comprising adhesive strip has been measured using an analytical balance with a 0,001-gram accuracy.
- The test was conducted both with perfume comprising water soluble unit dose articles as well as with nil perfume water soluble unit dose articles. The test was done with 2 replicates for perfume comprising and 1 replicate for nil perfume water soluble unit dose articles, and the average % weight loss has been calculated.

Test results:

[0093] Percentage weight loss data (Table 3) clearly show a decreased percentage weight loss when the adhesive strip is positioned at the bottom rather than at the top of the piled row of water soluble unit dose articles, perfume being released between 9% and 24% faster for the top versus the bottom positioning. The finding is consistent for both perfumed and nil perfume water soluble unit dose articles and across replicate tests. The decreased percentage weight loss when positioning the perfume comprising adhesive strip near the bottom of the holding container indicates a longer perfume long lasting potential relative to when the perfume comprising adhesive strip is positioned near the top of the container.

[0094] This is found surprising as water soluble unit dose articles were also found to absorb released perfume from the perfume comprising adhesive strip. As such, as volatilized perfume actives will rise from the bottom to the top of the container and come in contact with the enclosed water soluble unit dose articles extracting the released perfume actives from the headspace inside the container, expectation was that an increased rate of perfume loss from the bottom adhesive strip would have been observed (following chemical equilibrium principle).

[0095] Perfume migration into water soluble unit dose articles was demonstrated through a GC-MS headspace analysis on nil perfume water soluble unit dose articles, by adding a 35 days aged water soluble unit dose article into an empty glass container (dimensions : 78 mm height, 49 mm diameter) and measuring with GC-MS the perfume components build up into the headspace after a 3 days storage test at 25°C / 60% relative humidity controlled conditions. A reference nil perfume pouch not exposed to perfume comprising adhesive strip technology was also included to secure absence of false readings. A higher perfume absorption was also detected the closer the unit dose articles were stored to the perfume comprising adhesive strip, as such also confirming accuracy and validity of the conclusions from the analytical testing.

Table 3 : % weight loss perfume comprising adhesive strip

Wt % (after 35 days storage)	Bottom placement	Top placement
Perfumed unit dose articles	1.9	2.3 (+24%)
Nil perfume unit dose articles	2.3	2.5 (+9%)

[0096] 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".

Claims

1. A consumer product comprising at least one water-soluble unit dose article and a container;
 wherein the container comprises an internal compartment wherein the internal compartment houses the at least one water-soluble unit dose article; and
 wherein the at least one water-soluble unit dose article comprises at least one water-soluble film and a detergent composition;
 wherein the container comprises a base, an opening, a lid moveable between an open position and a closed position and at least one wall and wherein the internal compartment is accessible via the opening; and
 wherein the opening is positioned opposite to the base, the at least one wall extends from the base to the opening; and wherein in the closed position the lid blocks access to the opening and in the open position the user has access to the opening; and
 wherein the base has an internal surface and an exterior surface and wherein the at least one wall has an internal surface and an exterior surface; and
 wherein the container comprises an adhesive strip stuck to the interior surface of the base, the interior surface of the at least one wall, or a mixture thereof, preferably to the base; and wherein, when stuck to the interior surface of the at least one wall the adhesive strip is positioned between the base and no more than 50% of the distance between the base and the opening; and
 wherein the adhesive strip comprises a perfume; and
 wherein the container is manufactured from plastic, wherein the plastic is rigid, flexible or a mixture thereof.
2. The consumer product according to claim 1, wherein the adhesive strip comprises between 10% and 80%, preferably between 20% and 70%, more preferably between 30% and 60%, most preferably between 40% and 55% by weight of the adhesive strip of a perfume.
3. The consumer product according to any preceding claims comprising;
 - a. a copolymer of ethylene with at least another monomer comprising at least a heteroatom, preferably from 10% to 80%, more preferably from 15% to 60%, even more preferably from 20% to 50%, most preferably from 20% to 30% by weight of the adhesive strip of the copolymer of ethylene with at least another monomer comprising at least a heteroatom, even more preferably wherein the copolymer of ethylene with at least another monomer comprising at least a heteroatom is an ethylene-vinyl ester copolymer or an ethylene-acrylic ester copolymer, most preferably an ethylene - vinyl acetate copolymer; or
 - b. a plasticizer, preferably between 1% and 50%, more preferably between 2% to 35%, even more preferably between 3 and 25%, most preferably between 4% and 10% by weight of the adhesive strip of the plasticizer, wherein the plasticizer preferably comprises at least one heteroatom, even more preferably wherein the plasticizer is an ester compound, more preferably selected from citric acid esters and liquid rosin esters, most preferably liquid rosin esters; or
 - c. a tackifier, preferably between 1% and 50%, preferably between 2% and 35%, more preferably between 3-25%, most preferably between 10 and 20% by weight of the adhesive strip of a tackifier, preferably wherein the tackifier is selected from hydrocarbon resins, hydrogenated rosins and mixtures thereof; or
 - d. an antioxidant, preferably in an amount between 0.001% and 1%, preferably between 0.01% and 0.5%, more preferably between 0.05% and 0.25%, most preferably between 0.075% and 0.15% by weight of the adhesive strip, most preferably wherein the antioxidant comprises phenolic antioxidants; or
 - e. mixture thereof.
4. The consumer product according to any preceding claims wherein when the adhesive strip is stuck to the interior surface of the at least one wall the adhesive strip is positioned between the base and no more than 40%, preferably no more than 30%, more preferably no more than 20%, most preferably no more than 10% of the distance between the base and the opening.
5. The consumer product according to any preceding claims wherein the base comprises a trough and a raised portion, and wherein the adhesive strip is stuck to the interior surface of the base in the trough, in the raised portion or a mixture thereof, preferably in the trough.
6. The consumer product according to any preceding claims wherein the plastic is selected from polypropylene, polystyrene, polyethylene, high-density polyethylene, polyethylene terephthalate, polyvinyl chloride, Acrylonitrile Butadiene Styrene, Polycarbonates, Polyamides or a mixture thereof, most preferably from polypropylene, polystyrene,

high-density polyethylene, polyethylene terephthalate, or a mixture thereof.

7. The consumer product according to any preceding claims wherein the at least one wall has a height of between 5cm and 50cm, preferably between 7cm and 30 cm, more preferably between 10cm and 25cm.
8. The consumer product according to any preceding claims wherein the internal compartment has a volume of between 0.25L and 5L, more preferably between 0.5L and 4L, more preferably between 0.75L and 3.5L.
9. The consumer product according to any preceding claims wherein the adhesive strip has a weight of between 0.01g and 5g, preferably between 0.05g and 2g, most preferably between 0.1g and 1g.
10. The consumer product according to any preceding claims wherein the lid is connected to the container via a hinge, or wherein the lid is a screw on lid.
11. The consumer product according to any preceding claims wherein the at least one water-soluble unit dose article has a height, a width and a length wherein the height is between 1cm and 4cm, the width is between 2cm and 7cm, and the length is between 2cm and 7cm, and wherein preferably the container comprises between 1 and 30, preferably between 5 and 30, more preferably between 10 and 30 water-soluble unit dose articles.
12. The consumer product according to any preceding claims wherein the detergent composition is a liquid, a solid, or a mixture thereof, preferably a liquid, most preferably wherein the detergent is a liquid laundry detergent.
13. The consumer product according to any preceding claims, wherein the water-soluble film comprises a polymer wherein the polymer comprises a homopolymer, copolymer, or mixture thereof selected from polyvinyl alcohols, polyvinyl pyrrolidone, polyalkylene oxides, acrylamide, acrylic acid, cellulose, cellulose ethers, cellulose esters, cellulose amides, polyvinyl acetates, polycarboxylic acids and salts, polyaminoacids or peptides, polyamides, polyacrylamide, copolymers of maleic/acrylic acids, polysaccharides including starch and gelatine, xanthum, carragum or a mixture thereof, preferably, polyvinylalcohol homopolymers and/or anionic polyvinylalcohol copolymers preferably selected from sulphonated and carboxylated anionic polyvinylalcohol copolymers especially carboxylated anionic polyvinylalcohol copolymers.
14. The consumer product according to any preceding claims wherein the detergent composition comprises a non-soap surfactant, wherein preferably, the non-soap surfactant is selected from anionic non-soap surfactants, non-ionic surfactants, preferably wherein the laundry detergent composition comprises between 10% and 60%, more preferably between 20% and 55% by weight of the laundry detergent composition of the non-soap surfactant.

Fig. 1

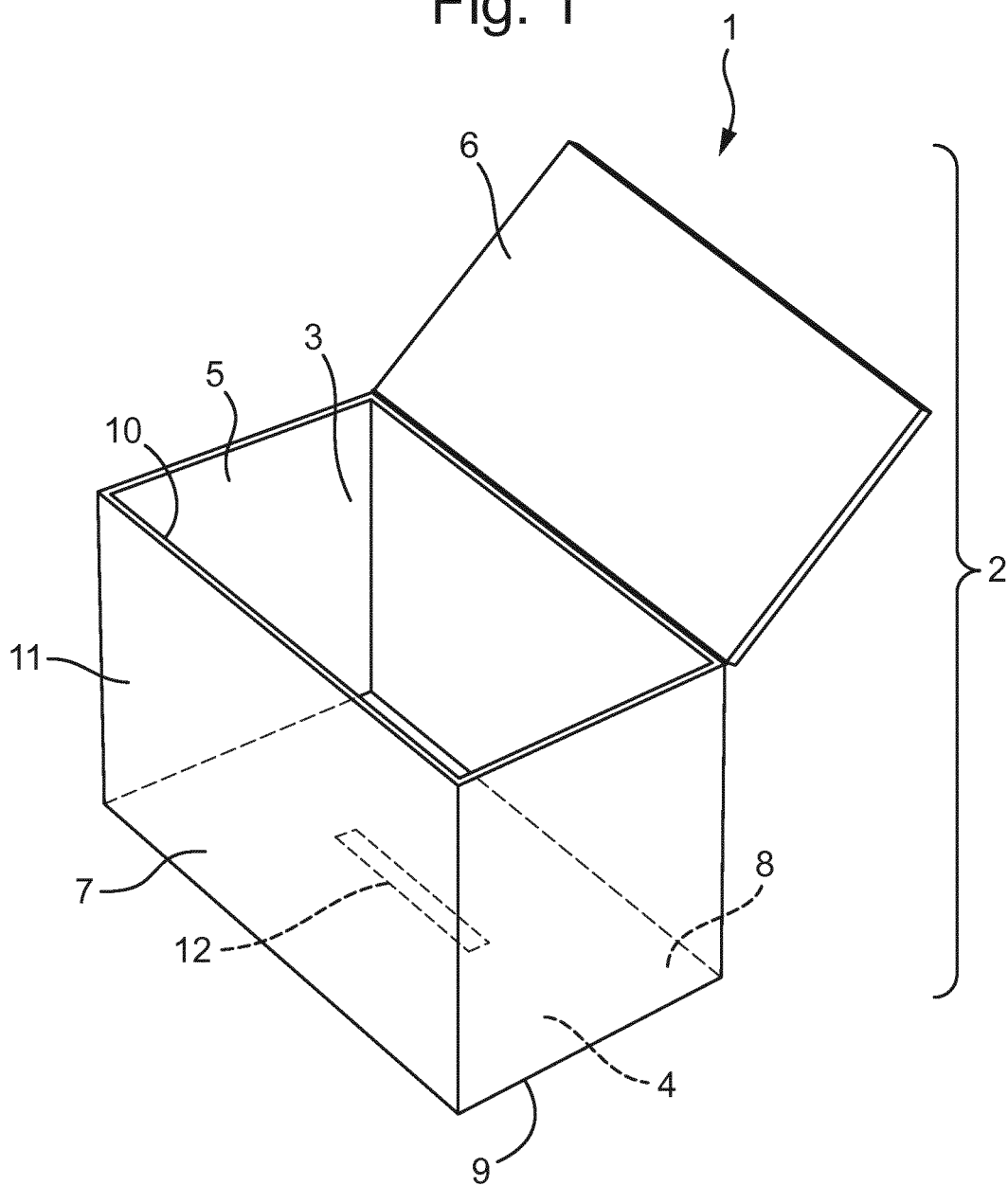


Fig. 2

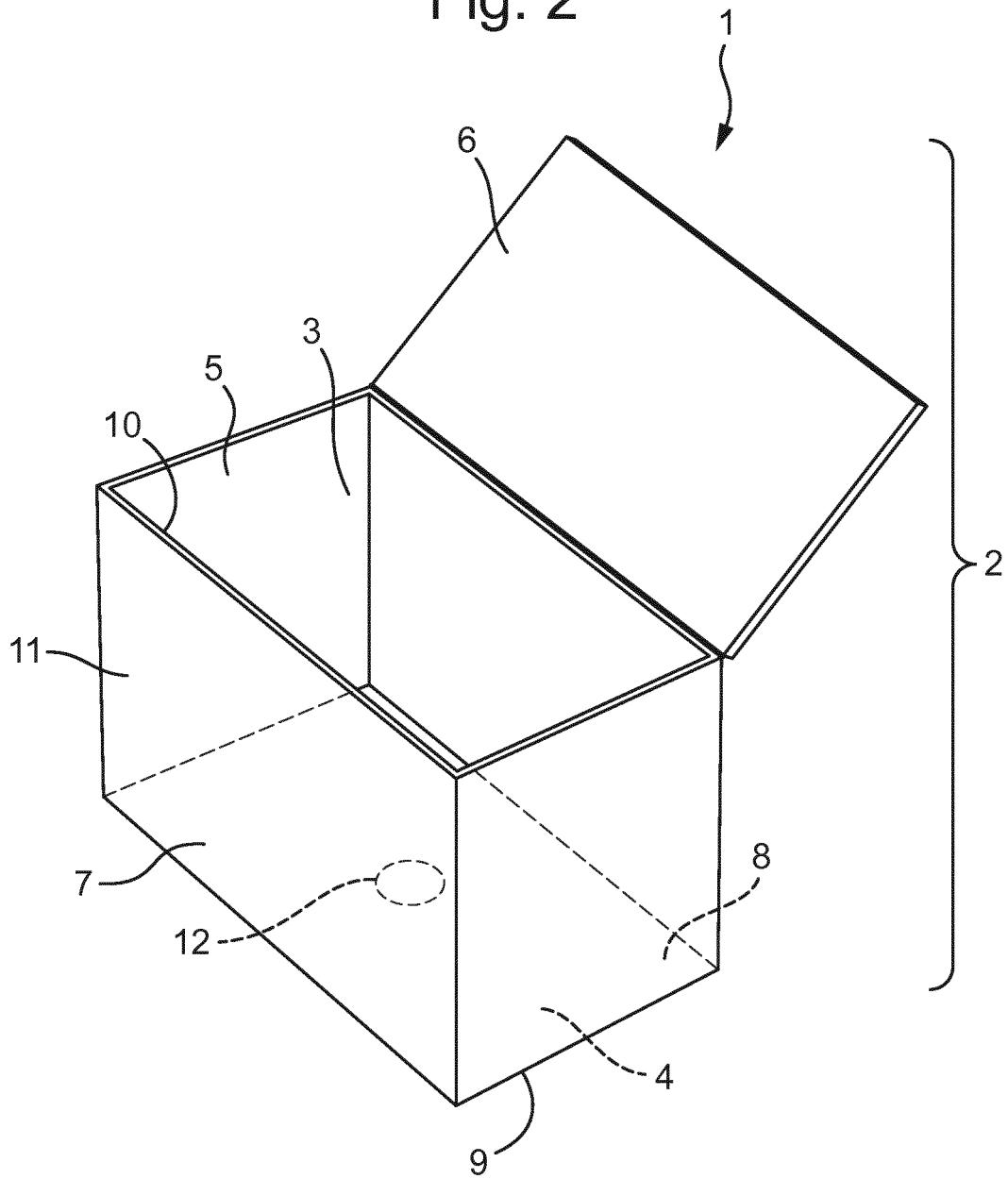


Fig. 3

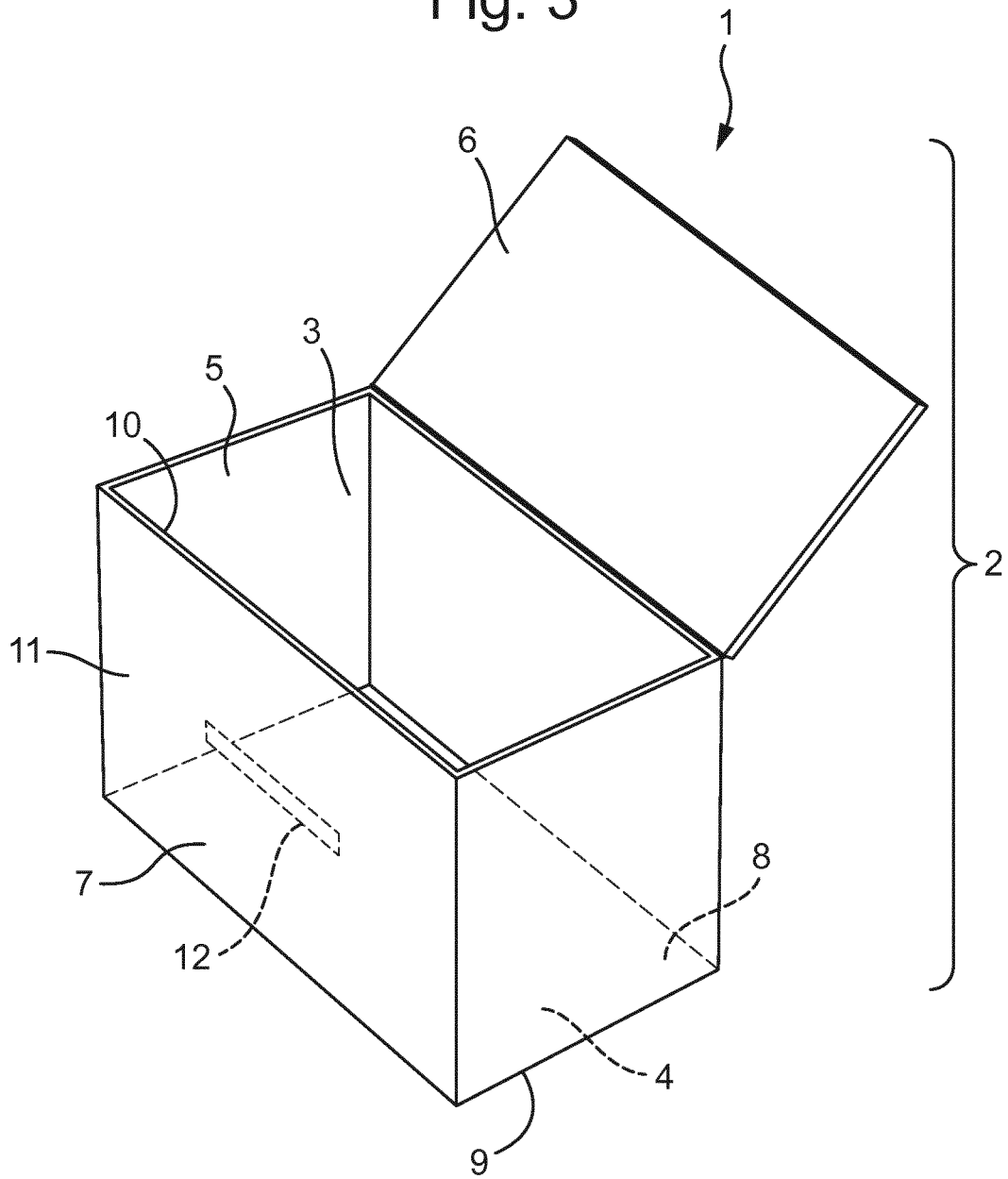


Fig. 4

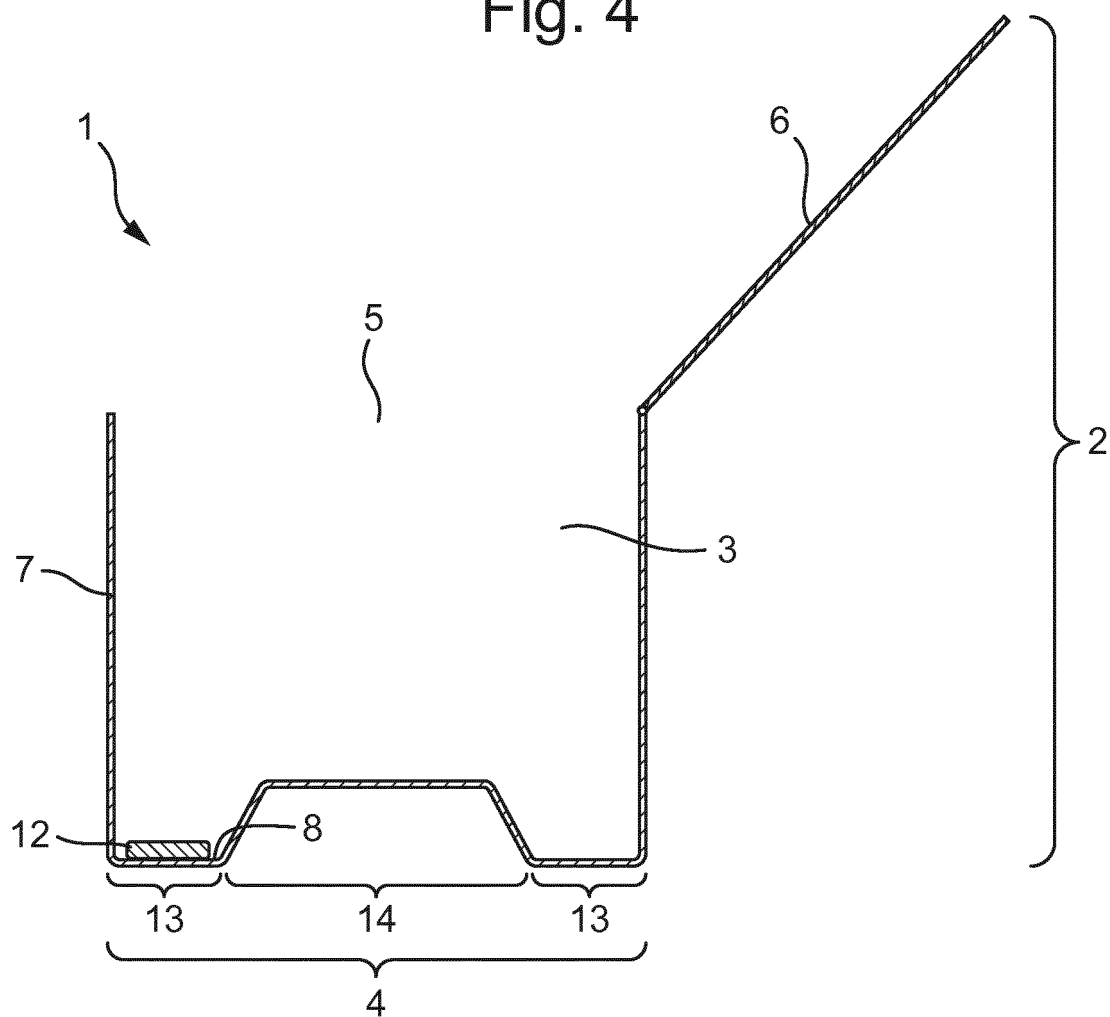


Fig. 5

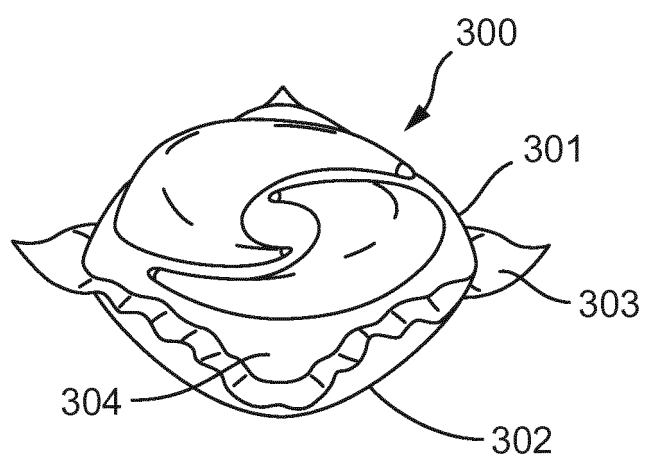
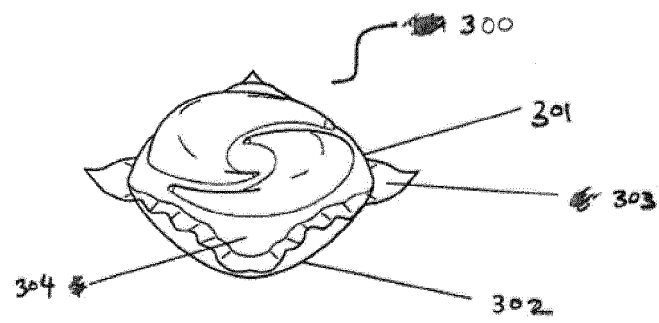


FIG. 5





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The Hague		13 December 2019	Richards, Michael
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