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(54) A POUCHED PRODUCT FOR ORAL USE

(57) The present disclosure relates to a pouched product for oral use, comprising a filling material and a saliva-permeable pouch enclosing the filling material, wherein the filling material comprises a single carrier sheet and an active agent, wherein the single carrier sheet is constituted by a single wadding carrier sheet comprising or consisting of wadding fibers.

Further, the present disclosure relates to method for manufacturing a pouched product for oral use, the method comprising:

- providing and advancing a web of a packaging material 10, the web of packaging material 10 advancing in a direction of travel DT;
- providing a web of a wadding carrier sheet 11 onto the web of packaging material 10; and
- sealing together and cutting through the web of packaging material 10 and the web of the wadding carrier sheet 11, in a direction transverse O to the direction of travel DT, to provide a plurality of pouches.

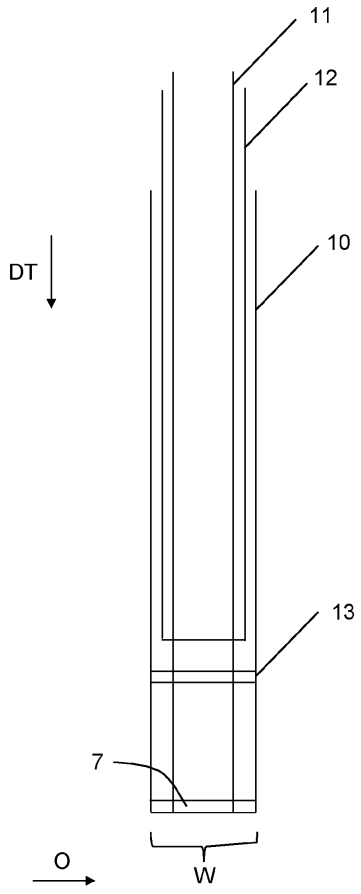

Fig. 2

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Description

TECHNICAL FIELD

[0001] The present disclosure relates to a pouched product for oral use. The present disclosure further relates to a method for manufacturing a pouched product for oral use.

BACKGROUND OF THE INVENTION

[0002] Pouched products for oral use may be produced by measuring portions of filling material, such as a smokeless tobacco composition and inserting the portions into a nonwoven tube.

[0003] There are also pouched non-tobacco products for oral use, which may be offered as alternatives to pouched smokeless tobacco products for oral use. The pouched non-tobacco products for oral use do not contain any tobacco material. Instead, the pouched non-tobacco products for oral use comprise non-tobacco plant material and/or a filling material. Examples of non-tobacco plant material includes plant fibers selected from the group consisting of maize fibers, oat fibres, tomato fibers, barley fibers, rye fibers, apple fibres, sugar beet fibres, potato fibres, corn fibres, buckwheat fibres, cocoa fibres, bamboo fibers, citrus fibers and any combinations thereof. Also processed fibers such as Microcrystalline Cellulose (MCC) fibers may be used. The filling material may be present in the form of particles. For instance, the filling material may be a particulate filling material, such as particles of microcrystalline cellulose.

[0004] US 4,703,765 discloses a device for packaging precise amounts of finely divided tobacco products, such as snuff tobacco or the like, in a tubular packaging material into which snuff portions are injected via a fill tube, the tubular packing material thereby having a vertical orientation. Downstream from the tube, welding means are positioned for transverse sealing of the packaging material, as well as cutting means for severing the packaging material in the area of the transverse seal to thus form discrete or individual portion packages.

[0005] The individual portions are sealed and cut apart thereby forming rectangular "pillow shaped" (or any other desired form) pouched products. Generally, each final pouched product includes parallel transverse seams at opposite ends and a longitudinal seam orthogonal to the transverse seams. The seals must be of sufficient strength to preserve the integrity of the pouched product during use while not disturbing the consumer's experience.

[0006] Further, it has been observed that a large proportion of flavour or nicotine in the filling material does not reach the consumer.

SUMMARY

[0007] It is an object of the present disclosure to provide pouched products that are soft and which provide an appealing mouthfeel.

[0008] A further object with the present disclosure is to achieve facilitated transport and handling of the products.

[0009] The environment during production of the pouched products may further be improved.

[0010] There is also an object to allow for a high and/or quick release of active agents.

[0011] There is further an object with the present disclosure to provide a method for manufacturing a pouched product in an effective way and with improved manufacturing environment.

[0012] These objects, as well as other objects being apparent to a skilled person studying the present description, are achieved by the pouched product for oral use as set out in the appended claims.

[0013] According to a first aspect, the present disclosure provides a pouched product for oral use, comprising a filling material and a saliva-permeable pouch enclosing the filling material. The filling material comprises a single carrier sheet and an active agent, wherein the single carrier sheet is constituted by a single wadding carrier sheet comprising or consisting of wadding fibers. A single wadding carrier sheet as a filling material in a pouched product provides a soft and appealing mouth feeling for the user. The pouched product will be easy to form and shape to conform with the gum of the user.

[0014] The active agent may be applied to the single wadding carrier sheet by coating, impregnating, spraying for example. The single wadding carrier sheet may be a carrier for the active agent and possibly additives.

[0015] Optionally, the wadding fibers may have a contact angle with water of 50° and above or preferably 60° and above, preferably 70° and above or most preferably 80° and above, or most preferred 90° and above. The wadding fiber's contact angle with water may be measured according to standard ISO 304:1985. A pouched product is obtained whose weight may be low, it will be soft and the single wadding carrier sheet provides a pouched product which may fit well in the oral cavity of the user, for example between the gum and the upper lip. The pouched product may conform to the shape of the user's gum. The single wadding carrier sheet comprising the wadding material comprising fibers having a contact angle with water of 50° and above, which may be measured according to standard ISO 304:1985, may give a pouch having a structure that do not collapse in any high degree. The single wadding carrier sheet may not collapse since the wadding fibers will hinder liquid to be absorbed into the single wadding carrier sheet. Wadding fibers having a contact angle with water of 50° and above, which may be measured according to standard ISO 304:1985 may achieve the effect that liquid is not absorbed into the single wadding carrier sheets. The wadding fibers may have a contact angle of 50° and above,

which is enough for the purpose of the present disclosure. However, a contact angle of 60° and above, preferably 70° and above, most preferably 80° and above, and most preferably 90° and above may enhance the effect of the wadding fibers, by not absorbing liquid in any high degree. Fibers having contact angles above 90° are conventionally considered hydrophobic. However, fibers having contact angle with water of smaller angle may also show hydropobic behaviour. The purpose is to not absorb much water or saliva.

[0016] Optionally, the wadding fibers may be selected from the group consisting of polyolefin fibers such as polypropylene (PP) fibers and polyethylene (PE) fibers; polyester fibers such as polyethylene terephthalate (PET) fibers; polylactic acid (PLA) fibers, PLA/coPLA fibers (PLA in the core and coPLA in the sheath, coPLA is a low-melt PLA, PLA=polylactic acid), polyhydroxyalkanoate (PHA) fibers, polybutylene succinate (PBS) fibers, regenerated cellulose fibers, lyocell fibers and viscose fibers and combinations thereof. The pouched products may fit well in the cavity of the user. The fibers of the single carrier sheet will hinder in a relevant degree that saliva or moisture may be absorbed into the single wadding carrier sheet. By this, the single wadding carrier sheet will not collapse in any high degree. The content of a single wadding carrier sheet makes the pouched product to a comfortable pouched product to be placed in the user's mouth on the gum under the lip. A soft and smooth pouched product is obtained.

[0017] The regenerated cellulose fibers, lyocell fibers and viscose fibers may have a contact angle with water of 50° and above. The fibers may achieve this by treatment of an agent or produced by a method which results in fibers having contact angle with water of 50° and above. The regenerated cellulose fibers, lyocell fibers and viscose fibers may have a contact angle of 60° and above, preferably 70° and above, most preferably 80° and above, and most preferably 90° and above. This may depend on the treatment or manufacturing of the regenerated cellulose fibers, lyocell fibers and viscose fibers, sometimes called to be "hydrophobic".

The wadding fibers may be selected from bi-component fibers selected from sheath/core fibers, such as PLA/coPLA fibers (PLA in the core and coPLA in the sheath, coPLA is a low-melt PLA, PLA=polylactic acid), PP/PE fibers (PP in the core and PE in the sheath, PP=polypropylene, PE=polyethylene).

[0018] The single wadding carrier sheet may be considered as scaffold forming a lofty or airy single wadding carrier sheet. The single wadding carrier sheet with a high airiness will give a scaffold structure. The airiness may make it possible to have relatively high amount of active agent to be adsorbed onto the singe wadding carrier sheet in comparison with the weight of the pouched product. The single wadding carrier sheet will make it possible to fit the pouched product in the mouth on the gum under the lip even. An appealing feeling will be obtained. Any superfluous conventional filling material is not necessary.

[0019] The single wadding carrier sheet will be light in weight, and the wadding fibers may give a high free area for active agents to adsorb onto or into the single wadding carrier sheet or pores of the single wadding carrier sheet. The single wadding carrier sheet of fibers may be a network of fibers having a contact angle with water of 50° and above.

[0020] Active agents will be adsorbed to the single wadding carrier sheet and during use the active agent will be released.

[0021] Some examples of water contact angles for the fibers are, when considering the contact angle with water, which may be measured according to standard ISO 304:1985: PLA: 60-70°, PHA: 70-90°, PP: 90-110°, PE: 90-110°, PET: 70-90° and PHB:90-110°. Regenerated cellulose fibers, lyocell fibers and viscose fibers may be chosen so that the contact angle with water will be at least 50° and above, or preferably 60° and above, more preferred 70° and above, even more preferred 80° and above and most preferred 90° and above. Those fibers may have some hydrophobic behavior. This may depend on the treatment or manufacturing of the regenerated cellulose fibers, lyocell fibers and viscose fibers, sometimes called to be "hydrophobic". Fibers having a contact angle with water of 90° and above may be preferred.

[0022] Optionally, the wadding fibers may have a linear density of 0.4 to 5.0 decitex.

[0023] Optionally, the wadding fibers may have a linear density $\leq$ 4.4 decitex, $\leq$ 3.3 decitex, preferably $\leq$ 2.2 decitex, more preferred $\leq$ 1.7 decitex, most preferably $\leq$ 1.3 decitexand even more preferred $\leq$ 0.9 decitex. The wadding fibers may have a linear density of $\geq$0.4.

[0024] Optionally, the wadding fibers may have an aspect ratio of >100. If the aspect ratio is lower it may be more difficult to achieve any single wadding carrier sheets.

[0025] Optionally the single wadding carrier sheet may comprise wadding fibers in the form of staple fibers. The properties of the staple fibers may be as set out herein for the wadding fibers in general.

[0026] Staple fibres may have a length of 6 mm and above. The staple fibers may have a length of 6-50 mm. preferably 6-40 mm, more preferred 8-30 mm and most preferred 10-25 mm.

[0027] Wadding sheets may be provided by entangling staple fibers with a suitable method.

[0028] Staple fibers may be used for manufacturing webs of wadding carrier sheets or single wadding carrier sheets depending on which method which is used for the manufacturing.

[0029] When using staple fibers, for example, the staple fibers will be mixed, entangled or formed in a suitable way to webs of wadding carrier sheets or single wadding carrier sheets. Active agents and possibly additives may be added or applied before, during or after the manufacturing of the wadding carrier sheets. The single wadding carrier sheet may be obtained by first forming a web of

wadding carrier sheet and then dividing the web to single wadding carrier sheets.

[0030] Optionally, the wadding fibers may comprise or consist of wadding filaments. Wadding filaments are substantially continuous fibers. Single wadding carrier sheets made of wadding filaments may achieve single wadding carrier sheets which have high porosity. The single wadding carrier sheet may be light in weight. The single wadding carrier sheets may have been produced during the production of the wadding filaments. The wadding filaments obtained in the production may be collected into a sheet of fibers. If the wadding filaments have been melted and not solidified the filaments can be binding together in cross sections where the wadding filaments meet or cross each other. A single wadding carrier sheet may be obtained. Wadding filaments may also be obtained by that a polymer solution is used for producing filaments. A polymer solution may be extruded through a hole in a spinneret. The single wadding carrier sheet may be light in weight and achieve a high porosity. Further, the wadding filaments may have been entangled when forming the single wadding carrier sheet. The properties of the wadding filaments may be as set out herein for the wadding fibers in general. The single wadding carrier sheet may be obtained by first forming a web of wadding carrier sheet and then dividing the web to single wadding carrier sheets.

[0031] Optionally, the wadding fibers may comprise or consist of thermoplastic fibers. When producing pouched products, some filling material may be caught in a seal during the sealing of the pouch. Conventional filling material, such as tobacco material, plant fibers and microcrystalline particles may deteriorate the seal by hindering contact between the parts to be sealed of the pouch material in the seal portion. If a single wadding carrier sheet is caught in a seal portion during production and if heat is used for the sealing, the single wadding carrier sheet comprising thermoplastic fibers will not hinder the sealing production since the thermoplastic fibers may melt and may possibly contribute to the sealing effect. Thus, further, improved seal ends may be provided. The thermoplastic fibers may be produced in a suitable way and can form the single wadding carrier sheet in a desired form and shape of the single wadding carrier sheet. Preferably a web of wadding carrier sheet is produced and when the pouched product is manufactured, the web of wadding carrier sheet is cut to suitable length of the single wadding carrier sheet.

[0032] Optionally, the pouched product may have a thickness of 3 to 10 mm,. The thickness may be measured according to a method for measuring the thickness of a pouched product which is disclosed below under description of test method. A porous pouched product with a light weight will be obtained. The handling and transport of the pouched products will be facilitated. Spill and dusting may be avoided since when using a single wadding carrier sheet, any small filling material will not be used and thereby not spilled and dusting during storage in packages will be avoided.. Further, the single wadding carrier sheet will not be spilled. The single wadding carrier sheet will have a density which is quite low and the single wadding carrier sheet is light in weight. Due to the size of the single wadding carrier sheet, better individual weight control of individual pouches may be obtained.

[0033] Optionally, the active agent may be selected from the group comprising nicotine, caffeine, taurine, cannabinoids, ginseng and branched-chain amino acids (BCAA) and combinations thereof.

[0034] Optionally, the pouched product may comprise nicotine in an amount of 1 mg to 25 mg, preferably 1 mg to 10 mg, or more preferably 2 mg to 8 mg nicotine.

[0035] The filling material may comprise further additives. Further additives may be any component which may be provided to the filling material as disclosed herein, such as salts (e.g. sodium chloride, potassium chloride, magnesium chloride, calcium chloride and any combinations thereof), pH adjusters (e.g. sodium hydroxide, potassium hydroxide, potassium carbonate, sodium carbonate or sodium bicarbonate), flavouring agents, sweeteners, colorants, humectants (e.g. propylene glycol or glycerol), antioxidants, preservatives (e.g. potassium sorbate), binders, tobacco and non-tobacco plant material. The additive may comprise or consist of flavouring agent, flavour oil, hydrophobic oil, synthetic flavour and nature-identical flavour. The water-soluble component or water-soluble components which are part of the filling material in the oral pouched products as disclosed herein constitute one or more additional components. Preferably, the filling material may comprise a pH adjuster. The pH adjuster may be selected from the group of sodium hydroxide, potassium hydroxide, potassium carbonate, sodium carbonate or sodium bicarbonate and combinations thereof. A pH adjuster may be added to the filling material together with nicotine so that the nicotine may be released as nicotine base in sufficient amount to allow for satisfactory absorption across the mucosal membranes when the product is placed in the oral cavity of a consumer.

[0036] Optionally, the pouched product may have a length in a longitudinal direction of the pouched product and a width in a transversal direction of the pouched product, and the pouched product may comprise transversal end seals. Further, the single wadding carrier sheet may have a length in the longitudinal direction of the pouched product. Further, the single wadding carrier sheet has two transversal ends. The length of the single wadding carrier sheet may extend along the entire length of the oral pouched product and the transversal ends of the single wadding carrier sheet is sealed into the transversal end seals of the pouched product. The single wadding carrier sheet may be fastened in the ends of the pouched product by that transversal ends of the single wadding carrier sheet will be sealed into the seal ends of the pouched product. The transversal ends of the single wadding carrier sheet may thus be fastened in the

transversal seals of the pouched product. When the single wadding carrier sheet is fastened in the pouched product the form and shape will be kept. A pear-form of the pouched product may for example be avoided.

[0037] Optionally, the single carrier sheet may have substantially the same length as the length of the pouched product. This makes it possible for the single carrier sheet to be fastened in the transversal seal ends of the pouched product.

[0038] Optionally, the single carrier sheet may not be fastened in the transversal ends of the pouched product. The transversal seal or seals may thus be free from single wadding carrier sheet.

[0039] Optionally, the single wadding carrier sheet has a width in the transversal direction of the pouched product and the width of the single wadding carrier sheet extends along the entire width of the oral pouched product.

[0040] Optionally, the width of the single carrier sheet may extend along the entire width of the oral pouched snuff product. Optionally, the single wadding carrier sheet may have substantially the same length as the width of the pouched product. This may improve the filling capacity of the single wadding carrier sheet. The single wadding carrier sheet may fill substantially the whole cavity of the pouch of the pouched product.

The single wadding carrier sheet may be considered as a continuous sheet substantially filling the pouch of the pouched product. It may be considered to constitute a coherent body. The single wadding carrier sheet may be in one single piece. Due to the size of the single wadding carrier sheet, better individual weight control of individual pouches may be obtained.

[0041] The pouched product may comprise two longitudinal sides in a longitudinal direction of the pouched product and two transverse end sides in a transverse direction of the pouched product. At least one of the two longitudinal sides is a folded edge of the packaging material. Two of the longitudinal sides may be a folded edge of the packaging material. Thus, the packaging material may comprise two longitudinal side edges formed of folded packaging material. A substantially rectangular pouched product may be formed. Two transversal seals are provided for sealing the single wadding carrier sheet in the pouch of the pouched product and for optionally attaching the single wadding carrier sheet in the seals. The single wadding carrier sheet will stay in place and not stray in the pouch, which conventional filling material may do. Optionally, the packaging material of the pouched product may have a longitudinal seal between the two longitudinal side edges.

[0042] The single wadding carrier sheet may comprise two longitudinal edges. The packaging material may surround the single wadding carrier sheet by being folded around the longitudinal edges of the single wadding carrier sheet.

[0043] Optionally, the packaging material may be a single-layer nonwoven material. It is a desire to release active agent in a fast way which may be obtained when the packaging material is a single-layer nonwoven material.

[0044] Optionally, the packaging material may be made of nonwoven layer. The nonwoven layer may have a thickness of at most 0.25 mm. The thickness may be from 0.05 to 0.25 mm. A fast offset of active agent may be obtained with a thin nonwoven layer in the packaging material.

[0045] Optionally, the pouched product may have a weight of 0.05 to 0.3 g, preferably 0.07 to 0.5 g. The light weight is an advantage when it refers to transport and handling of the pouched products. The content of active agent may be high in relation to the weight of the pouched product.

[0046] Optionally, the single wadding carrier sheet may be single wadding nonwoven sheet.

[0047] The oral pouched products may be light in weight, which facilitate transport and handling of the pouched products. Further, the pouched products may fit easily in the oral cavity of the user and appealing form in the cavity of the user. No conventional filling material will be needed which means that there will not be any spillage or waste of conventional filling material, such as granulates or powder. Possible pear-formations of pouched products are avoided. A porous and light weight filling material may be obtained.

[0048] Optionally, pouch of the pouched products may be substantially completely filled with the single wadding carrier sheet. The volume of cavity of the pouch will be substantially filled with the single wadding carrier sheet of the disclosure. The single wadding carrier sheet is porous and fluffy, so when using the expression substantially completely filled it means that the external parts of the single wadding carrier sheet will be close to the inner walls of the pouch cavity. No conventional filling material of for example granules or natural fibers will be needed in the pouched products as disclosed herein. Any spill, dusting or fuzziness may be avoided when no conventional filling material is used. Dust in the container for enclosing the pouched products is also avoided. Further, since the single carrier wadding sheet is larger than conventional filling material, any risk of spill of the single wadding carrier sheet is reduced. The filling material in the form of the single wadding carrier sheet may fill a high proportion of the cavity of the pouch filled and the pouched product may fit well to the gum of the user.

[0049] Optionally, the pouch may be made of a packaging material of a nonwoven material, wherein the nonwoven material may comprise packaging fibers selected from the group of thermoplastic fibers, cellulose fibers and regenerated cellulose fibers and combinations thereof. Further, the nonwoven material may comprise a binder.

[0050] The single carrier wadding sheet may comprise water insoluble fibers or water insoluble foam.

[0051] Optionally, the pouched product may be a biodegradable product. Biodegradable products which are lost or thrown on the ground, may disintegrate over time

and eventually be integrated with the soil. There will be less load on the environment.

[0052] Optionally, the pouched product for oral use may be a biodegradable pouched product. Biodegradable products which are lost or thrown on the ground, may disintegrate over time and eventually be integrated with the soil. There will be less load on the environment. A biodegradable product is advantageous for many reasons. It is advantageous for the environment that the product is biodegradable so it can be recycled as compost, preferably in a home-composting environment. The used product is in the form of a soft, pouched product for oral use, which will be spitted out and discarded after use. Biodegradability of the products may mitigate the negative effects of littering in that products which are unintentionally or intentionally dropped on the ground will degrade and disintegrate over time.

[0053] The pouched product as disclosed herein is preferably made from biodegradable and preferably also biobased materials. As set out herein, it may be particularly preferred that the product is degradable under home composting conditions. However, it may be sufficient that the product meets industry compost standards, as a used, discarded product may then be sorted together with other industry compostable materials.

[0054] By biodegradable is herein meant that the material is biodegradable or compostable according to the standard EN13432.

[0055] Optionally, the wadding fibers are biodegradable. Optionally the wadding fibers are biodegradable-and are selected from the group consisting of regenerated cellulose fibers, viscose fibers, lyocell fibers, polylactic acid (PLA) fibers, PLA/coPLA fibers (PLA in the core and coPLA in the sheath, coPLA is a low-melt PLA, PLA=polylactic acid, polyhydroxyalkanoate (PHA) fibers and polybutylene succinate (PBS) fibers and combinations thereof.

[0056] PHA fibers include PHBV (Poly(3-hydroxybutyrate-co-3-hydroxyvalerate), PHBH (Poly(3-hydroxybutyrate-co-3-hydroxyhexanoate), PHBO (poly(3-hydroxybutyrate-co-3-hydroxyoctanoate), PHBD (poly(3-hydroxybutyrate-co-3-hydroxydecanoate), P3HB (poly-3-hydroxybutyrate) or P4HB (poly-4-hydroxybutyrate).

[0057] Optionally, regenerated cellulose fibers, viscose fibers and lyocell fibers have a contact angle of with water of 50° and above, or preferably of 60° and above, or more preferred of 70° and above, even more preferred of 80° and above and most preferred of 90° and above.

[0058] A viscose fiber which may be used is OLEA viscose fiber which is hydrophobic. The contact angle with water will be 50° and above and preferably 60° and above, more preferred 70° and above, more preferred 80° and above, and most preferred 90° and above. The viscose fiber OLEA is soft and biodegradable.

[0059] Optionally, the saliva-permeable pouch comprises a packaging material of nonwoven material and may comprise biodegradable packaging fibers selected from the group consisting of cellulose fibers, regenerated cellulose fibers, viscose fibers, lyocell fibers, polylactic acid (PLA) fibers, polyhydroxyalkanoate (PHA) fibers and polybutylene succinate (PBS) fibers and combinations thereof.

PHA fibers include PHBV (Poly(3-hydroxybutyrate-co-3-hydroxyvalerate), PHBH (Poly(3-hydroxybutyrate-co-3-hydroxyhexanoate), PHBO (poly(3-hydroxybutyrate-co-3-hydroxyoctanoate), PHBD (poly(3-hydroxybutyrate-co-3-hydroxydecanoate), P3HB (poly-3-hydroxybutyrate) or P4HB (poly-4-hydroxybutyrate).

[0060] Optionally, the saliva-permeable pouch comprises a nonwoven layer which may comprise biodegradable packaging fibers selected from the group consisting of cellulose fibers, regenerated cellulose fibers, viscose fibers, lyocell fibers, polylactic acid (PLA) fibers, polyhydroxyalkanoate (PHA) fibers and polybutylene succinate (PBS) fibers and combinations thereof.

[0061] Optionally, the pouched product may be a non-tobacco pouched product.

[0062] Further examples of single carrier sheets may be obtained from woven fabric carrier sheets or knitted carrier sheets. Those may be divided to suitable portions of single carrier sheets. Any kind of form may be used of the carrier sheets as long as they fit a form which may be used and inserted into a pouch. The single carrier sheets of woven fabric carrier sheets or knitted carrier sheets may be in the form of porous sheets.

[0063] Optionally, the single carrier sheet may be a single foam carrier sheet. Single foam carrier sheets may be introduced into the pouched product. The active agent may be added to the single foam carrier sheet which may have open cells, in which active agent may be adhered. Optionally, the foam carrier sheet may comprise a foam, wherein the foam is selected from the group of polyurethane foam, cellulose foam, polyhydroxyalkanoate (PHA) foam, polyhydroxybutyrate (PHB) foam, polylactic acid (PLA) foam and PLA/coPLA foam.

[0064] According to a second aspect, a method for manufacturing a pouched product for oral use is provided. The method comprises:

- providing and advancing a web of a packaging material, the at least one web of packaging material advancing in a direction of travel;
- providing a web of a wadding carrier sheet material onto the web of packaging material; and

sealing together and cutting through the at least one web of packaging material and the web of the wadding carrier sheet material, in a direction transverse to the direction of travel, to provide a plurality of pouches. The wadding carrier sheet material will be provided in the packaging material and then the packaging material and the wadding carrier sheet material enclosed in the packaging material will be sealed in a transversal direction in relation to the direction of travel. The manufacturing will be effective and with reduced dusting compared to when conventional filling material is used.

[0065] The direction of travel may be coinciding with the longitudinal direction of the pouched product when manufactured. When the pouch is formed, a single wadding carrier sheet is comprised in the pouched product.

[0066] The method may comprise to form the web of packaging material into a tubular web. The forming of the web may be applied before or after supplying the web of wadding carrier sheet material, thereby providing and advancing tubular web of packaging material containing the wadding carrier sheet.

[0067] The method may comprise to provide the web of packaging material through a dosing tube. The web of wadding carrier sheet may be inserted into the dosing tube as a continuous web of the wadding carrier sheet. A facilitated manufacturing method is achieved. Dusting and spill may be avoided. The sealing and cutting will be performed during the process of advancing the web of packaging material and the web of wadding carrier sheet.

[0068] The method may comprise sealing a web of packaging material including the web of wadding carrier sheet in a direction which is transverse to the direction of travel. A pouched product containing a single wadding carrier sheet, wherein the transversal ends of the single wadding carrier sheet is fastened in the seals of the pouched product, is achieved.

[0069] The method may comprise sealing the web of packaging material in the direction of travel. A pouched product for oral use will be obtained wherein the sealing has been performed in both the transversal ends and in the longitudinal direction of the pouched product.

[0070] The sealing may be performed by thermo-sealing, mechanical sealing or sealing with the use of a binder, such as a chemical binder. When the single wadding carrier sheet comprises thermoplastic fibers, the thermoplastic fibers may be bonding if a thermo-sealing method is used.

[0071] Sealing of pouches of the pouched products may for example be made by means of heat or by ultrasonic energy. It is in that case desirable that the pouch material and the material of the single wadding carrier sheet comprises a component, e.g. a thermoplastic polymer, which is reactive to heat or ultrasonic energy, such that this component contributes to the sealing of the pouch. This component may be a binder, or may form a staple fiber or a filament.

[0072] As an alternative or a complement, sealing may be performed by means of glue or adhesive. As yet an alternative or a complement, sealing may be performed by mechanical edge embossing, with or without heat.

[0073] The method may comprise to apply an active agent to the single carrier sheet or the web of wadding carrier sheet. The active agent may be added by impregnation, coating or spraying.

[0074] The single wadding carrier sheet or the web of wadding carrier sheet may be impregnated with active agent. Additives may also be contained in a solution which the wadding carrier sheet or the web of wadding carrier sheet may be impregnated with. It is also contemplated to apply active agent and/or flavour as a coating on the single wadding carrier sheet or the web of wadding carrier sheet. Further, spraying of the active agent on the single wadding carrier sheet or the wadding carrier sheet may be used. Combinations of impregnation and coating are also contemplated for the single wadding carrier sheet ore the web of wadding carrier sheet as disclosed herein. By way of example, a single wadding carrier sheet or a web of wadding carrier sheet as disclosed herein may be impregnated with a first active agent followed by coating with a second active agent or a flavour, such that an initial active agent release may be subsequently followed from a second active agent release.

[0075] The method may comprise forming the web of wadding carrier sheet of fibers by spinning, spin laying, melt spinning, electrospinning, spunlace, hydroentangling, dry laying, wet laying, spraying a polymer solution to fibers.

[0076] The sealing may be provided by ultrasonic sealing . If the fibers of the web of wadding carrier sheet comprises sealable fibers, it may allow an ultrasonic sealing to be performed. Ultrasonic sealing may be preferred to use when sealing a pouched product comprising a single wadding carrier sheet as disclosed herein. The ultrasonic energy may penetrate through the web of wadding carrier sheet or the single wadding carrier sheet and penetrate through the packaging material.

DEFINITIONS

[0077] A filament is considered as a fiber of indefinite length. A filament may be produced for example by extruding a plastic polymer or polymer solution through a hole in a spinneret.

[0078] By wadding material is herein meant a high-loft material, primarily fibrous. Waddings are not woven or knitted and can be considered a high-loft nonwoven.
A wadding carrier sheet comprises wadding material.

[0079] The terms "flavour" or "flavouring agent" are used herein for substances used to influence the aroma and/or taste of the oral pouched product. The flavours may be any food-grade 15 natural or synthetic flavour as known in the art and may include, without limitation, essential oils, single flavour compounds, compounded flavourings, and extracts.

[0080] Here, the term "pouched product for oral use" refers to a smokeless product comprising a packaging material for enclosing a smokeless filling material. The packaging material surrounds the filling material.

[0081] Herein, the term "filling material" refers to the material inside the pouch of an oral pouched product as disclosed herein.

[0082] A "single carrier sheet" as used herein is a sheet which constitutes a structure-providing element, or a scaffold, in the pouched product as disclosed herein. The single carrier sheet may be loaded with one or more active agents.

[0083] A "single wadding carrier sheet" is a sheet which

constitutes a structure-providing element, or a scaffold, in the pouched product as disclosed herein. The single wadding carrier sheet comprises wadding fibers and may be loaded with one or more active agents.

BRIEF DESCRIPTION OF THE DRAWINGS

[0084]

Figure 1 shows a pouched product for oral use according to the disclosure

Figure 2 shows schematically a step of the welding process

DETAILED DESCRIPTION

[0085] Pouched products may be produced in the form of rectangular pouches. Pouched products for oral use may lose their form when produced or when used in the cavity of a user. When conventional filling material is supplied to the pouches, they may obtain a so called pear-form. The filling material may be collected at one of the transversal ends of the pouches. The pouches may also lose their form in the cavity of the user when saliva is absorbed in conventional filling material. This may be avoided with the present disclosure.

[0086] A pouched product for oral use, comprising a filling material and a saliva-permeable pouch enclosing the filling material is provided in the present disclosure. The filling material comprises a single wadding carrier sheet and an active agent, wherein the single carrier sheet is constituted by a single wadding carrier sheet comprising or consisting of wadding fibers.

[0087] Single wadding carrier sheets may be produced by entangling fibers of suitable linear density and suitable length. Suitable binder may be used for binding fibers together for forming single carrier sheets. Further, nonwoven techniques for producing nonwoven sheets or webs may be used to produce nonwoven material, but with less compression of the sheet so the airiness will be obtained in the material. The web of an airy nonwoven sheet may be cut or divided in a suitable way to form single wadding carrier sheet. The nonwoven sheet or web may be cut along the length of the sheet in order to form wadding carrier sheets with suitable width for providing the wadding carrier sheet material when producing the pouched product and introducing the wadding carrier sheet material to the packaging material in a continuous way.

[0088] A single wadding carrier sheet in the form of a fluffy sheet may be produced according to the following. Polymer pellets of suitable polymer are processed into small pellets. The pellets are melted and down and fed into an extruder and continuous filaments are produced. The extruded filament exits the die and may be cut to smaller size. The length of the fibers can vary depending on the desired size of the wadding carrier sheets. The fibres or filaments are entangled to form a wadding carrier sheet. The size of the wadding carrier sheet may differ and may depend on the length of the fiber. Tumbling or sieving may be used in the end of the process to remove any irregularities or excess mate. Webs of wadding carrier sheet may be produced as disclosed and divided to single wadding sheets.

[0089] Waddings may be produced by choosing fibers, carding, cross-lapping and bonding. Different type of bonding may be used.

[0090] Fiber tow may be used as an example for producing carrier wadding sheets.

[0091] Wadding carrier sheets may be produced by felting. Fibers are compressed and tangled together to form a fabric. Wet felting could be used or needle felting could be used. This method makes a more dense wadding carrier sheets than some other techniques. From a felted web for example, smaller pieces of the web may be achieved by cutting or punching parts of the web to be used as wadding carrier sheets in the pouched product as disclosed herein.

[0092] The wadding fibers may comprise or consist of wadding filaments. Wadding filaments are substantially continuous fibers. When the single wadding carrier sheet comprises wadding filaments, the single wadding carrier sheets may have been produced during the production of the wadding filaments. The wadding filaments obtained in the production may be collected into a web of wadding carrier sheet. If the wadding filaments have been melted and not solidified the wadding filaments can be binding together in cross sections where the wadding filaments meet or cross each other. A web of wadding carrier sheet will be cut to suitable length for the pouched product, possibly when manufacturing the pouched product.

[0093] The single carrier sheet may be a single foam carrier sheet comprising polyurethane foam, cellulose foam, polylactic acid (PLA) foam, PLA/coPLA foam and polyhydroxybutyrate foam.

[0094] The nicotine may be comprised in the filling material in the form of a nicotine compound. The nicotine compound may be a nicotine base and/or may be selected from the group consisting of nicotine hydrochloride, nicotine dihydrochloride, nicotine monotartrate, nicotine bitartrate, nicotine bitartrate dihydrate, nicotine sulphate, nicotine zinc chloride monohydrate and nicotine salicylate, nicotine benzoate, nicotine polacrilex and any combination thereof. The nicotine may be added to the single wadding carrier sheet or to the web of the wadding carrier sheet by for example impregnating, spraying or coating.

[0095] The filling material may comprise a binder. Advantageously, the binder is saliva-soluble thereby allowing the nicotine source to be released when contacted with saliva such as human saliva. The binder may be selected from the group consisting of hydroxypropyl methylcellulose (HPMC), hydroxypropyl cellulose (HPC), methyl cellulose (MC), polyvinylpyrrolidone (PVP) and any mixture thereof. The binder may further comprise Kollidon, i.e. polyvinylpyrrolidine, and/or poly-

ethylene glycol (PEG). In addition to functioning as a binder, the binder allows for protecting the nicotine source from being degraded, imparting a desired release rate of the nicotine source and/or ensuring that the nicotine source is placed in a desired location

[0096] The active agent and possibly additives, may be added to the wadding carrier sheet by for example impregnation, spraying or coating.

[0097] Figure 1 discloses a pouched product 1 having a length I in a longitudinal direction L of the pouched product 1 and a width W in a transversal direction T of the pouched product 1. The pouched product 1 comprises transversal end seals 7. Further, the single wadding carrier sheet (not shown) has a length in the longitudinal direction L of the pouched product and a width in the transversal direction T of the pouched product 1. The single wadding carrier sheet have two transversal ends. The length of the single wadding carrier sheet may extend along the entire length of the pouched product 1 and the transversal ends of the single wadding carrier sheet may be sealed into the transversal end seals 7 of the pouched product 1. The pouched product may have a seal 6 extending in the longitudinal direction L.

[0098] Optionally, the biodegradable foam is selected from the group of cellulose foam, polylactic acid (PLA) foam, PLA/coPLA foam and polyhydroxybutyrate foam.

[0099] Foam carrier sheets may be inserted into the pouched product and the pouched product may be formed. Further, the active agent may be added to the foam carrier sheet to which the active agent may be adhered. The foam may have open cells, in which active agent may be adhered.

[0100] Examples of other materials that can be a single carrier sheet may be single woven fabric carrier sheet and single knitted carrier sheet. The single carrier sheet may be in the form of a porous sheet.

[0101] A method for manufacturing a pouched product for oral use is disclosed herein and schematically shown in figure 2. A step of the method shown schematically comprising:

- providing and advancing a web of a packaging material 10, the web of packaging material 10 advancing in a direction of travel DT;
- providing a web of a wadding carrier sheet 11 to the web of packaging material 10; and
- sealing together and cutting through the web of packaging material 10 and the web of the wadding carrier sheet 11, in a direction transverse O to the direction of travel DT, to provide a plurality of pouches.

The web of wadding carrier sheet 11 may be provided through a dosing tube 12 to the web of packaging material 10. The web of wadding carrier sheet 11 may be inserted into the dosing tube 12 as a continuous web of the wadding carrier sheet 11. A facilitated manufacturing method is achieved. Dusting and spill may be avoided. The sealing and cutting will be performed during the process of advancing the web of packaging material and the web of wadding carrier sheet.

[0102] The method may comprise:

sealing the web of packaging material 10 in the direction of travel DT.

[0103] The width W of the obtained pouched product is seen in figure 2. The width W may correspond to the width W of the pouched product 1 seen in figure 1.

[0104] The sealing and cutting in the web of packaging material and the web of the wadding carrier sheet may be performed with a sealing device 13. The sealing in the direction transverse O to the direction of travel DT is schematically shown by sealing horn or anvil 13 shown schematically. A transversal seal 7 already produced is shown in figure 2.

[0105] The sealing may be provided by ultrasonic sealing.

[0106] If the web of wadding carrier sheet comprises sealable fibers, the wadding fibers of the web of wadding carrier sheet may be fastened in the seal, and further, the web of wadding carrier sheet, which will form the single wadding carrier sheet, when divided to a single wadding carrier sheet, in a pouched product, may be attached in the transversal seals and displacement of the single wadding carrier sheet may be avoided.

[0107] The single wadding carrier sheet may be manufactured by providing a web of a wadding carrier sheet material. The web may manufactured by spinning, spin laying, melt spinning, spunlace, hydroentangling, dry laying, spin bonding, melt blowing, electrospinning, spunbond, meltblowing or spraying a polymer solution to fibers The web of the wadding carrier sheet material may be provided when producing the pouched products, and welding and cutting for producing the pouched products may be obtained. A web of nonwoven material may be used as the wadding carrier sheet material. It is preferred that the nonwoven material is in a bulky state. It may be a nonwoven in an early step of any nonwoven production. It could be flocked airy continuous, mainly uncarded, filaments in an early stage of any nonwoven production. The nonwoven material may be produced of staple fibers, or filaments.

[0108] The web of wadding carrier sheet may be inserted continuously during the manufacturing of the pouched products.

[0109] A single wadding carrier sheet may be produced when wadding filaments are produced. A web of entangled filaments may be produced and then the web of wadding filaments may be cut to suitable size for use as single wadding carrier sheets in pouched products. It is preferred that webs of entangled filaments may be produced and further divided into suitable web size to be introduced into the packaging material when producing pouched products. Nonwoven techniques for producing nonwoven webs may be used to produce nonwoven material, but with less compression of the web so the airiness will be obtained in the material. The web of an

airy nonwoven web may be cut or divided in suitable way to form single carrier sheets. Such a single carrier sheet may be referred to as a single wadding nonwoven carrier sheet.

[0110] In the single wadding carrier sheet, the wadding fibers will be kept together. The fibers could be kept together by binding. The binding may be thermo-binding or mechanical bonding. The thermo-binding may be achieved by melting thermoplastic material and producing fibers which bind to each other. Mechanical bonding may be spunlace or tumbling. A solution may be applied to bind the fibers together where the fibers cross.

[0111] In some of the methods for producing the single wadding carrier sheet, it may be required that the fibers are made of thermoplastic material, so that thermoplastic fibers are produced and thus forming the single wadding carrier sheet. Examples of methods that produce thermoplastic fibers are spinning, spin laying, meltspinning for example. As mentioned above, it may be preferred that a web of wadding carrier sheet is manufactured for later dividing it to single wadding carrier sheets.

[0112] Regenerated cellulose fibers, such as rayon fibers, lyocellfibers or viscose fibers may be produced by spinning dissolved wood pulp in a solution and extruding the solution through spinnerets into a chemical bath that regenerates the fibers. The regenerated cellulose fibers, rayon fibers, lyocell fibers or viscose fibers may have a contact angle with water of 50° and above, or preferably 60° and above, preferably 70° and above, preferably 80° and above and more preferred preferably 90° and above, which may be measured according to standard ISO 304:1985.

[0113] Hydrophobic regenerated fibers may be produced by treating the fiber surface of regenerated fibers with a hydrophobic agent. Further, surface active agents may be used to obtain hydrophobicity on the regenerated cellulose fibers. Further, when the fibers are produced in the spinning process, a hydrophobic finish may be used to obtain hydrophobicity. Hydrophobic regenerated cellulose fibers may be soft and are water repellent. The fibers may add bulk, softness and may be biodegradable. The production of regenerated cellulose fibers having a contact angle to water of 50° and above, or preferably 60° and above, may be treated in the similar way as the hydrophobic regenerated fibers, but with another amount of any agent which is provided.

[0114] The single wadding carrier sheet may be impregnated with the active agent.

[0115] The single wadding carrier sheet may be impregnated with active agent and possibly with additives or flavour. It is also contemplated to apply active agent and additives as a coating on the single wadding carrier sheet. Further, spraying of the active agent on the single wadding carrier sheet may be used. Combinations of impregnation and coating are also contemplated for the single wadding carrier sheet as disclosed herein. By way of example, a single wadding carrier sheet as disclosed herein may be impregnated with a first active agent followed by coating with a second active agent or a flavour, such that an initial active agent release may be subsequently followed from a second active agent release. Binders may be applied to improve the binding of the active agent to the wadding fibers. The active agent and additives may be mixed with a liquid and may be applied as a solution to the wadding carrier sheet. The solution may be applied by spraying on the wadding carrier sheet, dropping on the wadding carrier sheet, dipping in the solution. Additives may be added as a powder.

[0116] When wadding fibers are manufactured and single wadding carrier sheets are manufactured, the wadding fibers may be impregnated with active agent before forming the single wadding carrier sheets of fibers.

[0117] A single carrier sheet may be a single foam carrier sheet. The single foam carrier sheets may be considered as scaffolds forming a lofty or airy single foam carrier sheet. The single foam carrier sheet with a high airiness and porosity will give a scaffold structure for giving the pouched product an increased volume. The airiness may make it possible to have relatively high amount of active agent to be adsorbed onto the singe carrier foam sheet in comparison with the weight of the pouched product. Further, the soft and airy scaffold will make it possible for the user to form the pouched product when the pouched product is located on the gum. The single carrier foam sheet will make it possible to fit the pouched product in the mouth on the gum under the lip. An appealing feeling will be obtained. Any superfluous conventional filling material is not necessary.

Foam carrier sheets may be inserted into the pouched product and the pouched product may be formed. Further, the active agent may be added to the foam carrier sheet to which the active agent may be adhered. The foam may have open cells, in which active agent may be adhered.

[0118] By biodegradable is herein meant that the material is biodegradable or compostable according to the standard EN13432.

[0119] According to another aspect a pouched product for oral use is provided herein as disclosed in item 1.

[0120] Item 1 A pouched product for oral use, comprising a filling material and a saliva-permeable pouch enclosing the filling material, wherein the filling material comprises a single carrier sheet and an active agent, wherein the single carrier sheet is constituted by a single foam carrier sheet comprising or consisting of foam.

[0121] Item 2 The pouched product according to item 1, wherein the foam has a contact angle with water of 50° and above, or preferably 60° and above, more preferred 70° and above, even more preferred 80° and above and most preferred 90° and above.

[0122] Item 3 The pouched product according to item 1 or item 2, wherein the foam is selected from the group of polyurethane foam, cellulose foam, polyhydroxyalkanoate (PHA) foam, polyhydroxybutyrate (PHB) foam, polylactic acid (PLA) foam and PLA/coPLA foam and combi-

nations thereof.

[0123] Item 4 The pouched product according to any of items 1-3, wherein the active agent is selected from the group comprising nicotine, caffeine, taurine, cannabinoids, ginseng and branched-chain acids (BSAA) and combinations thereof.

[0124] Item 5 The pouched product according to any of items 1-4, wherein the pouched product has a length in a longitudinal direction of the pouched product and a width in a transversal direction of the pouched product, and the pouched product comprises transversal end seals, and wherein the single foam carrier sheet has a length in the longitudinal direction of the pouched product and the single foam carrier sheet has two transversal ends, wherein the length of the single foam carrier sheet extends along the entire length of the oral pouched product and the transversal ends of the single foam carrier sheet is sealed into the transversal end seals of the pouched product.

[0125] Item 6 The pouched product according to item 5, wherein the single wadding carrier sheet has a width in the transversal direction of the pouched product and the width of the single wadding carrier sheet extends along the entire width of the pouched product.

[0126] Item 7 The pouched product according to any items 1-6, wherein the packaging material is a single-layer nonwoven material.

[0127] Item 8 The pouched product according to any of items 1-7, wherein the pouched product has a weight of 0.05 to 0.3 g, preferably 0.07 to 0.2 g.

[0128] Item 9 The pouched product according to any of items 1-8, wherein the pouched product is a biodegradable product.

[0129] Item 10 The pouched product according to any of items 1-9, wherein the foam is biodegradable.

[0130] Item 11 The pouched product according to any of items 1-10, wherein the foam is selected from the group of cellulose foam, polyhydroxyalkanoate (PHA) foam, polyhydroxybutyrate (PHB) foam polylactic acid foam, and PLA/coPLA foam .

[0131] Item 12 The pouched product according to any of items 1-11, wherein the active agent is nicotine and the product comprises nicotine in an amount of 1 mg to 25 mg, preferably 1 mg to 10 mg, or more preferably 2 mg to 8 mg nicotine.

[0132] Item 13 The pouched product according to any of items 1-12, wherein the pouched product has a thickness of 3 to 10 mm.

[0133] Item 14 A method for manufacturing a pouched product for oral use, the method comprising:

- providing and advancing a web of a packaging material, the web of packaging material advancing in a direction of travel;
- providing a web of a foam carrier sheet onto the web of packaging material; and

sealing together and cutting through the web of packaging material and the web of the foam carrier sheet, in a direction transverse to the direction of travel, to provide a plurality of pouches.

[0134] Item 15 The method according to item 14, comprising forming the web of packaging material into a tubular web, the forming being performed before or after providing the web of foam carrier sheet, thereby providing an advancing tubular web of packaging material containing the web of the foam carrier sheet.

[0135] Item 16 The method according to any of items 14-15, comprising:
sealing the web of packaging material in the direction of travel.

[0136] Item 17 The method according to any of items 14-16, comprising:
applying an active agent to the single foam carrier sheet.

[0137] In other regards, the features and description for the wadding, as disclosed herein, is applicable to the single foam carrier sheet.

[0138] In other regards, the features and description for the wadding, as disclosed herein, is applicable to the single foam sheet.

[0139] Further, the single carrier sheet may be single carrier sheet of fibers, single nonwoven carrier sheet, single woven fabric carrier sheet or single knitted carrier sheet. A single carrier sheet may be provided by cutting and dividing a nonwoven material into smaller portions to be used as single nonwoven carrier sheet in a pouched product. Further, a woven fabric carrier sheet may be cut to portions to be used as a single woven fabric carrier sheet. Further, a knitted carrier sheet may be provided by cutting and dividing a knitted fabric to portions to be used as single knitted carrier sheet. The fibers may have the features as otherwise disclosed herein. Further, webs of nonwoven material, woven fabric, knitted fabric may be provided when producing the pouched products and the webs will be cut during manufacturing of the pouched products after sealing between the pouches has been performed. Alternatively, single carrier sheets may be cut from the webs and introduced in the pouch and form the pouched product.

[0140] According to another aspect a pouched product for oral use is provided herein as disclosed in item 18.

[0141] Item 18 A pouched product for oral use, wherein the pouched product comprises a filling material and a saliva-permeable pouch enclosing the filling material, wherein the filling material comprises a single carrier sheet and an active agent, wherein the single carrier sheet is constituted of by a single woven fabric carrier sheet or a single knitted fabric carrier sheet, wherein the single woven fabric carrier sheet or single knitted fabric carrier sheet comprises or consists of fabric fibers.

[0142] Item 19 The pouched product according to item 18, wherein the fabric fibers have a contact angle with water of 50° and above, or preferably 60° and above, more preferred 70° and above, even more preferred 80° and above and most preferred 90° and above.

[0143] Item 20 The pouched product according to any

of items 18-19, wherein the fabric fibers are selected from the group consisting of polyolefin fibers such as polypropylene (PP) fibers and polyethylene (PE) fibers; polyester fibers such as polyethylene terephthalate (PET) fibers; polylactic acid (PLA) fibers, PLA/coPLA fibers (PLA in the core and coPLA in the sheath, coPLA is a low-melt PLA, PLA=polylactic acid), polyhdroxyalkanoate (PHA) fibers, polybutylene succinate (PBS) fibers, regenerated cellulose fibers, lyocell fibers and viscose fibers and combinations thereof.

[0144] Item 21 The pouched product according to any of items 18-20, wherein the fabric fibers have a linear density 0.4 to 5.0 decitex.

[0145] Item 22 The pouched product according to any of items 18-21, wherein the fabric fibers have an aspect ratio of >100.

[0146] Item 23 The pouched product according to any of items 18-22, wherein the fabric fibers comprise or consist of fabric filaments or stable fibers.

[0147] Item 24 The pouched product according to any of items 18-23, wherein the fabric fibers comprise or consist of thermoplastic fibers.

[0148] Item 25 The pouched product according to any of items 18-24, wherein pouched product has a thickness of 3 to 10 mm.

[0149] Item 26 The pouched product according to any of items 18-25, wherein the active agent is selected from the group comprising nicotine caffeine, taurine, cannabinoids, ginseng and branched-chain acids (BSAA) and combinations thereof.

[0150] Item 27 The pouched product according to any of items 18-27, wherein the pouched product has a length in a longitudinal direction of the pouched product and a width in a transversal direction of the pouched product, and the pouched product comprises transversal end seals, and wherein the single woven fabric carrier sheet or the single knitted fabric carrier sheet has a length in the longitudinal direction of the pouched product and the single woven fabric carrier sheet or the single knitted fabric carrier sheet has two transversal ends, wherein the length of the single woven fabric carrier sheet or the single knitted fabric carrier sheet extends along the entire length of the oral pouched product and the transversal ends of the single woven fabric carrier sheet or the single knitted fabric carrier sheet is sealed into the transversal end seals of the pouched product.

[0151] Item 28 The pouched product according to item 27, wherein the single woven fabric carrier sheet or the single knitted fabric carrier sheet has a width in the transversal direction of the pouched product and the width of the single woven fabric carrier sheet or the single knitted fabric carrier sheet extends along the entire width of the oral pouched product.

[0152] Item 29 The pouched product according to any of items 18-28, wherein the packaging material is a single-layer nonwoven material.

[0153] Item 30 The pouched product according to any of items 18-29, wherein the pouched product has a weight of 0.05 to 0.3 g, preferably 0.07 to 0.5 g.

[0154] Item 31 The pouched product according to any of items 18-30, wherein the pouched product is a biodegradable product.

[0155] Item 32 The pouched product according to item 31, wherein the fabric fibers are biodegradable.

[0156] Item 33 The pouched product according to item 32, wherein the fabric fibers are selected from the group of regenerated cellulose fibers, viscose fibers, lyocell fibers, polylactic acid (PLA) fibers, (PLA/coPLA fibers (PLA in the core and coPLA in the sheath, coPLA is a low-melt PLA, PLA=polylactic acid), polyhydroxyalkanoate (PHA) fibers and polybutylene succinate (PBS) fibers and combinations thereof.

[0157] Item 34 The pouched product according to any of items 18-33, wherein the saliva-permeable pouch comprises a nonwoven comprising biodegradable packaging fibers selected from the group of cellulose fibers, regenerated cellulose fibers, viscose fibers, lyocell fibers, polylactic acid (PLA) fibers, polyhydroxyalkanoate (PHA) fibers and polybutylene succinate (PBS) fibers and combinations thereof.

[0158] Item 35 A method for manufacturing a pouched product for oral use, the method comprising:

- providing and advancing a web of a packaging material, the web of packaging material advancing in a direction of travel;
- providing a web of a woven fabric carrier sheet or knitted fabric carrier sheet onto the web of packaging material; and
- sealing together and cutting through the web of packaging material and the F**web of the woven fabric carrier sheet or knitted fabric carrier sheet, in a direction transverse to the direction of travel , to provide a plurality of pouches.

[0159] Item 36 The method according to item 35, comprising forming the web of packaging material into a tubular web, the forming being performed before or after providing the web of woven fabric carrier sheet or knitted fabric carrier sheet, thereby providing an advancing tubular web of packaging material containing the web of the woven fabric carrier sheet or knitted fabric carrier sheet.

[0160] Item 37 The method according to any of items 35-36, comprising:
sealing the web of packaging material in the direction of travel.

[0161] Item 38 The method according to any of items 35-37, comprising:
applying an active agent to the single woven fabric carrier sheet or single knitted fabric carrier sheet.

[0162] Item 39 The method according to any of items 35-39, wherein sealing is provided by ultrasonic sealing.

[0163] Item 40 The pouched product according to any of items 26-34, wherein the active agent is nicotine and the product comprises nicotine in an amount of 1 mg to 25 mg, preferably 1 mg to 10 mg, or more preferably 2 mg to

8 mg nicotine.

[0164] Item 41 The pouched product according to item 19, wherein the fabric fibers have a contact angle with water of 50° and above, or preferably 60° and above, more preferred 70° and above, even more preferred 80° and above and most preferred 90° and above, measured according to standard ISO 304:1985.

[0165] In other regards, the features and description for the wadding, as disclosed herein, is applicable to the single woven fabric carrier sheet or the single knitted fabric carrier sheet.

DESCRIPTION OF TEST METHOD

Test method for determining thickness of a pouched product.

Apparatus

[0166] The thickness of a pouched product is determined using a rheometer having a stationary bottom plate and a movable press plate.

Sample preparation

[0167] Each sample is tested before. When handling the sample products, care should be taken not to squeeze the samples or otherwise disturb the filling material inside the product cover.

Test procedure

[0168] The rheometer is started according to the start procedure.

[0169] An oral pouched product is placed flat with one of the two main surfaces on the bottom plate of the rheometer. The oral pouched product is removed from the storage container by hand or by means of a pair of tweezers and care is taken to center the sample on the bottom plate to ascertain that the force is evenly distributed over the sample during the measurement.

[0170] The measuring sequence is started and the thickness of the sample at a low applied pressure force of 0.5 N is registered.

[0171] The pre-use thickness t1 or the post-use thickness t2 of the oral pouched product is determined as the maximum distance between the two main surfaces of the oral pouched product at an applied pressure force of 0.5 N.

[0172] The thickness of a tested oral pouched product is determined as the average thickness of 10 tested product samples taken from the same batch of oral pouched products.

Claims

1. A pouched product (1) for oral use, comprising a filling material and a saliva-permeable pouch enclosing the filling material, wherein the filling material comprises a single carrier sheet and an active agent, wherein the single carrier sheet is constituted by a single wadding carrier sheet comprising or consisting of wadding fibers.

2. The pouched product (1) according to claim 1, wherein the wadding fibers have a contact angle with water of 50° and above, or preferably 60° and above, preferably 70° and above or most preferably 80° and above, or most preferred 90° and above.

3. The pouched product (1) according to any of the preceding claims, wherein the wadding fibers are selected from the group consisting of polyolefin fibers such as polypropylene (PP) fibers and polyethylene (PE) fibers; polyester fibers such as polyethylene terephthalate (PET) fibers; polylactic acid (PLA) fibers, PLA/coPLA fibers (PLA in the core and coPLA in the sheath, coPLA is a low-melt PLA, PLA=polylactic acid), polyhydroxyalkanoate (PHA) fibers, polybutylene succinate (PBS) fibers, regenerated cellulose fibers, lyocell fibers and viscose fibers and combinations thereof.

4. The pouched product (1) according to any of the preceding claims, wherein the wadding fibers have a linear density 0.4 to 5.0 decitex.

5. The pouched product according to any of the preceding claims, wherein the wadding fibers have an aspect ratio of >100.

6. The pouched product (1) according to any of the preceding claims, wherein the wadding fibers comprise or consist of thermoplastic fibers.

7. The pouched product (1) according to any of the preceding claims, wherein the active agent is selected from the group comprising nicotine caffeine, taurine, cannabinoids, ginseng and branched-chain acids (BSAA) and combinations thereof.

8. The pouched product (1) according to any of the preceding claims, wherein the pouched product (1) has a length (l) in a longitudinal direction (L) of the pouched product (1) and a width (W) in a transversal direction (T) of the pouched product (1), and the pouched product (1) comprises transversal end seals (7), and wherein the single wadding carrier sheet has a length in the longitudinal direction (L) of the pouched product (1) and the single wadding carrier sheet has two transversal ends, wherein the length of the single wadding carrier sheet extends along the entire length (l) of the oral pouched product (1) and the transversal ends of the single wadding carrier sheet is sealed into the transversal end seals

(7) of the pouched product (1).

9. The pouched product according to any of the preceding claims, wherein the pouched product has a weight of 0.05 to 0.3 g, preferably 0.07 to 0.5 g.

10. The pouched product according to any of the preceding claims, wherein the pouched product is a biodegradable product.

11. The pouched product according to any of the preceding claims, wherein the wadding fibers are biodegradable.

12. The pouched product according to claim 11, wherein the wadding fibers are selected from the group of regenerated cellulose fibers, viscose fibers, lyocell fibers, polylactic acid (PLA) fibers, PLA/coPLA fibers (PLA in the core and coPLA in the sheath, coPLA is a low-melt PLA, PLA=polylactic acid), polyhydroxyalkanoate (PHA) fibers and polybutylene succinate (PBS) fibers and combinations thereof.

13. The pouched product according to any of the preceding claims, wherein the filling material comprises a pH adjuster.

14. A method for manufacturing a pouched product for oral use, the method comprising:

- providing and advancing a web of a packaging material (10), the web of packaging material (10) advancing in a direction of travel (DT);
- providing a web of a wadding carrier sheet (11) onto the web of packaging material (10); and
- sealing together and cutting through the web of packaging material and the web of the wadding carrier sheet, in a direction transverse (O) to the direction of travel (DT), to provide a plurality of pouches.

15. The method according to claim 14, comprising forming the web of packaging material (10) into a tubular web, the forming being performed before or after providing the web of wadding carrier sheet (11), thereby providing an advancing tubular web of packaging material (10) containing the web of the wadding carrier sheet (11).

16. The method according to any of claims 14-15, comprising:
applying an active agent to the web of wadding carrier sheet (10).

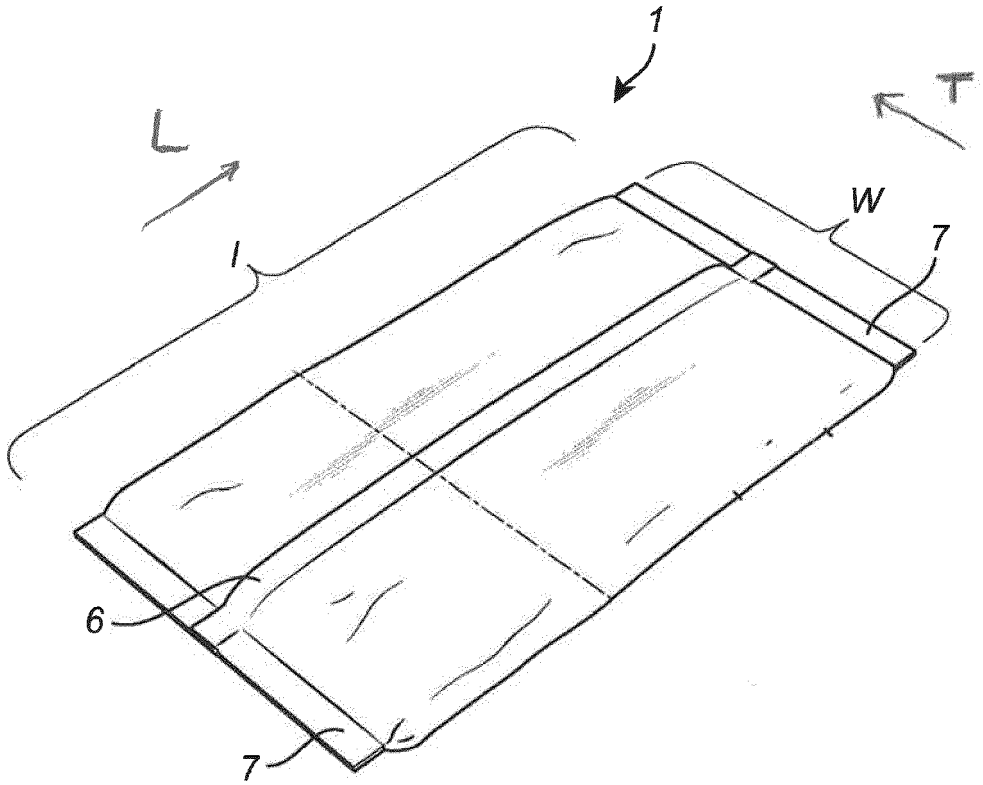

Fig. 1

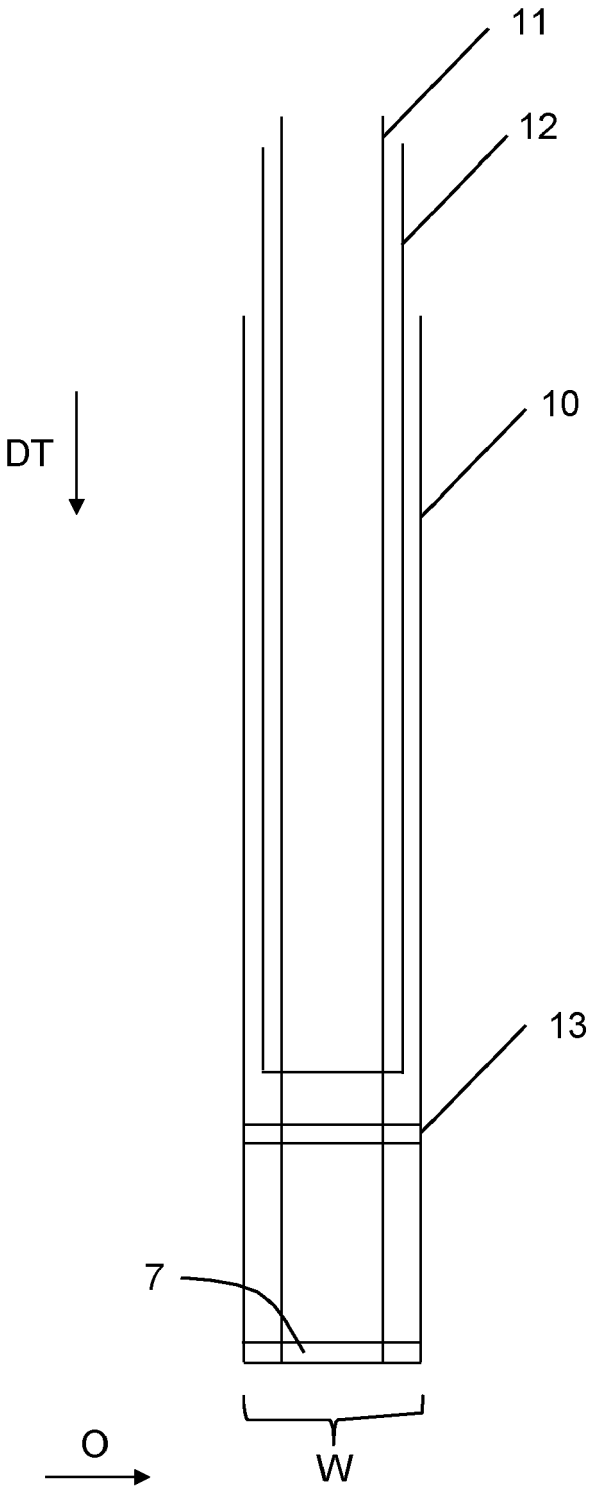

Fig. 2

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EUROPEAN SEARCH REPORT

Application Number
EP 23 18 4765

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Place of search	Date of completion of the search	Examiner
The Hague	31 October 2023	Dimoula, Kerasina

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X : particularly relevant if taken alone
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& : member of the same patent family, corresponding document

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