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(54) METHOD OF IMPROVING RE-CLOSURE OF OXIDATIVE HAIR COLORANT SACHET WITH FOLDABLE RE-CLOSURE DEVICE

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(57) **ABSTRACT**

The present invention relates to a method of maintaining chemical reactivity of an oxidative hair colorant in an opened flexible sachet including a reclosure element. The quality of the re-closure will strongly influence how the hair colorant will perform when using it as intended. The method according to the present invention ensures maintaining chemical reactivity by improving the quality of the re-closure by intuitively inducing safe and tight re-closure by users of such hair colorant. This is achieved by providing the sachet to the user in a configuration already in its re-closure position, while the sachet has not been opened yet.

Fig. 1

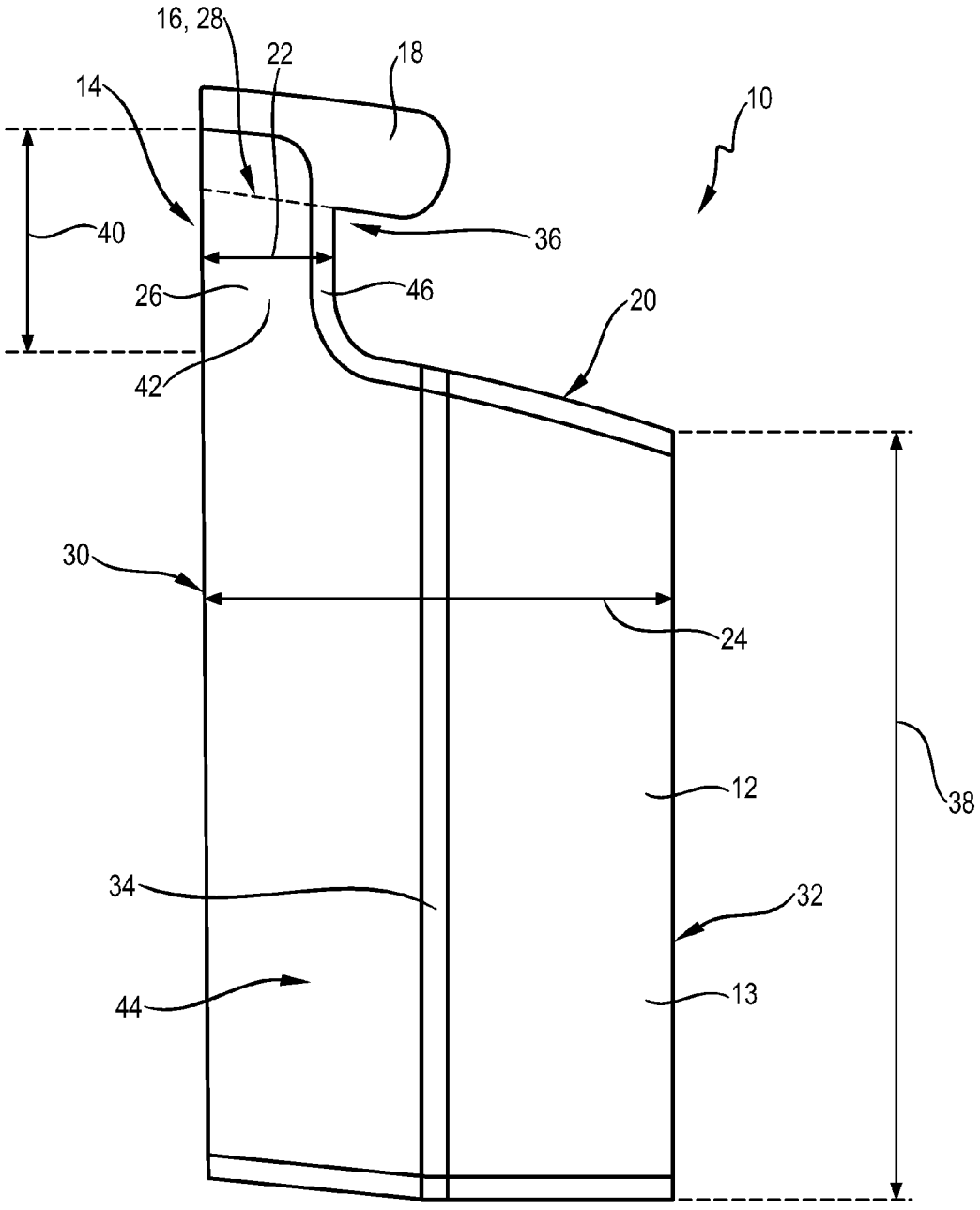


Fig. 2

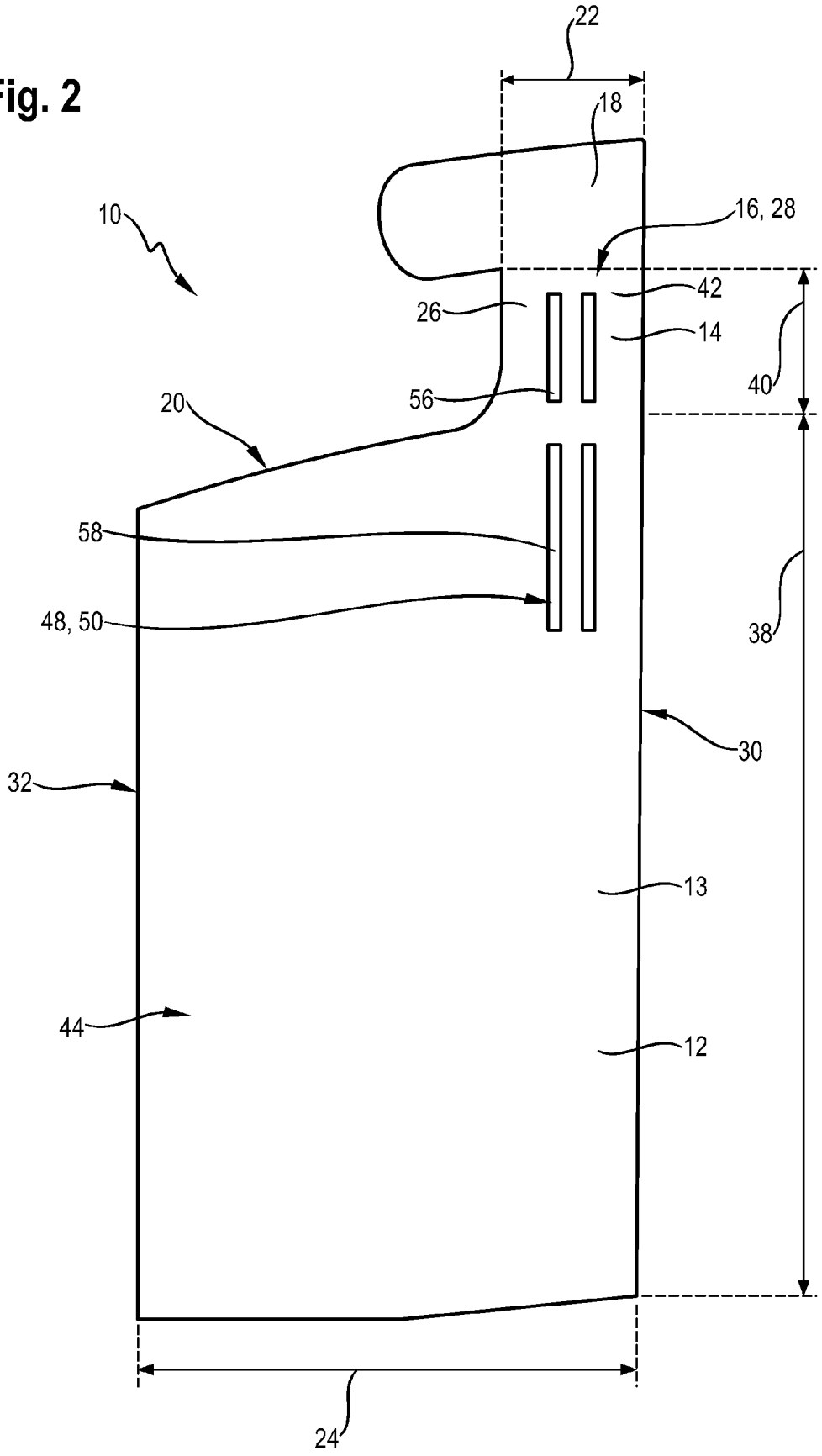


Fig. 3

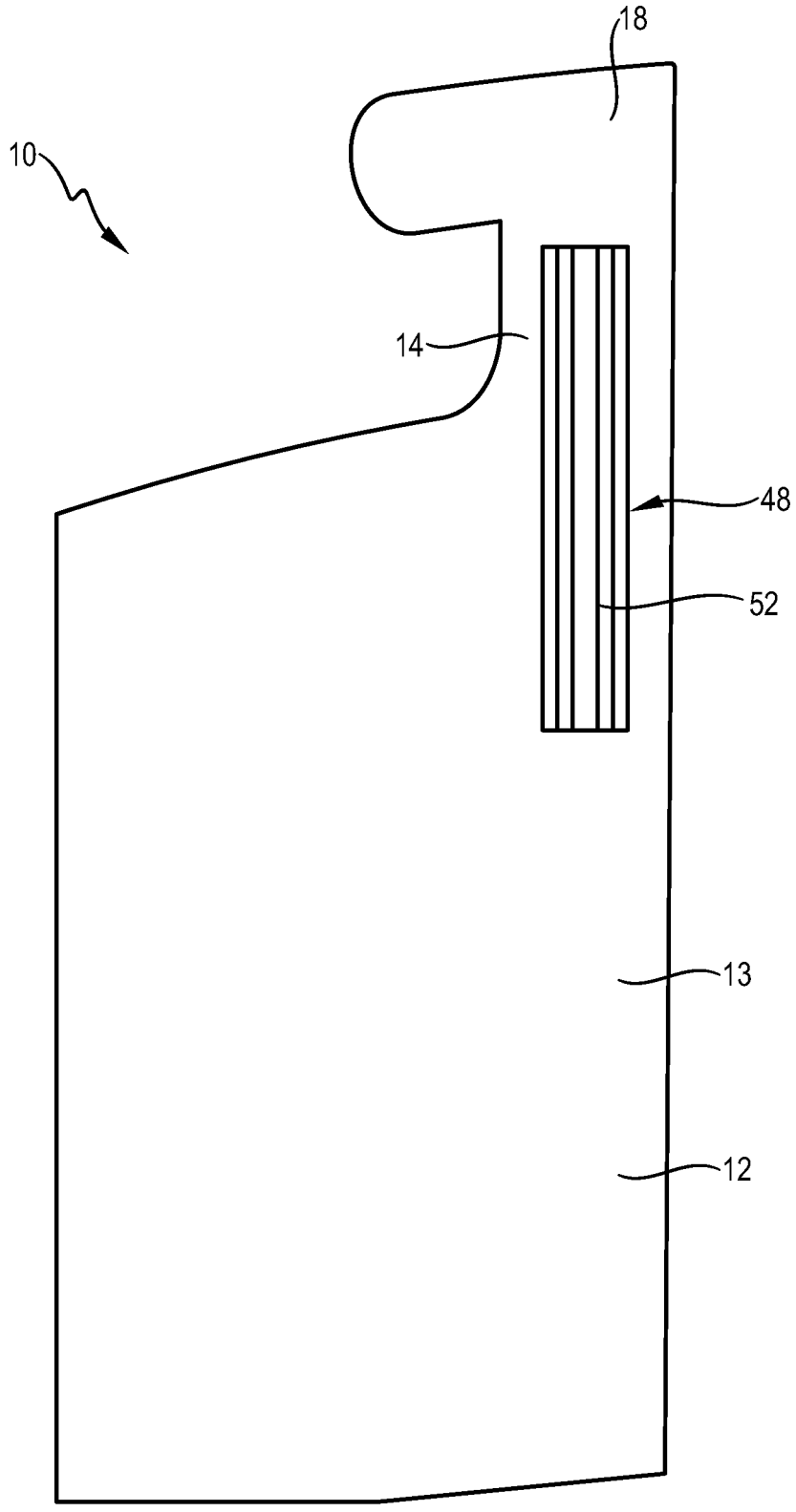


Fig. 4

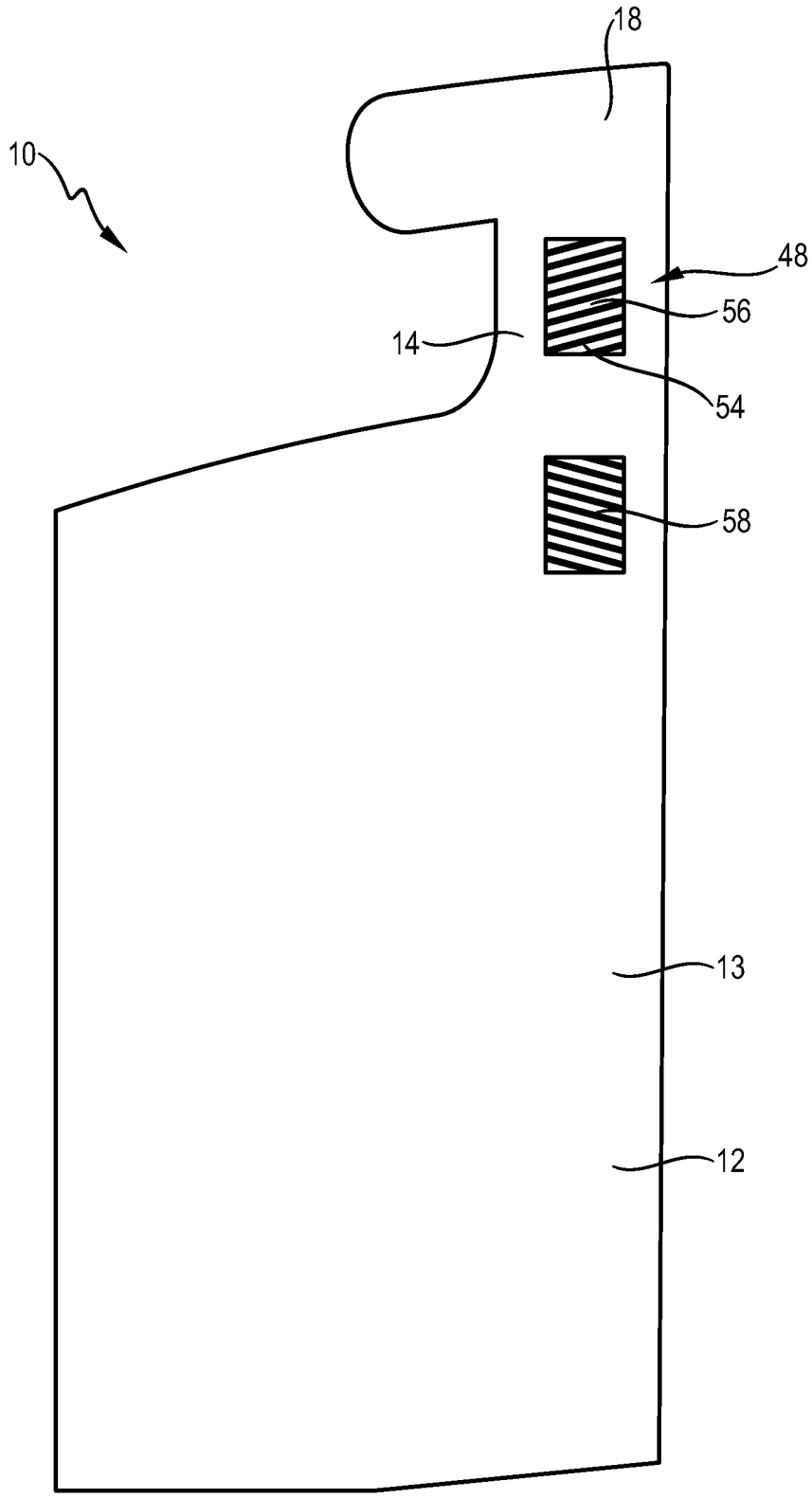
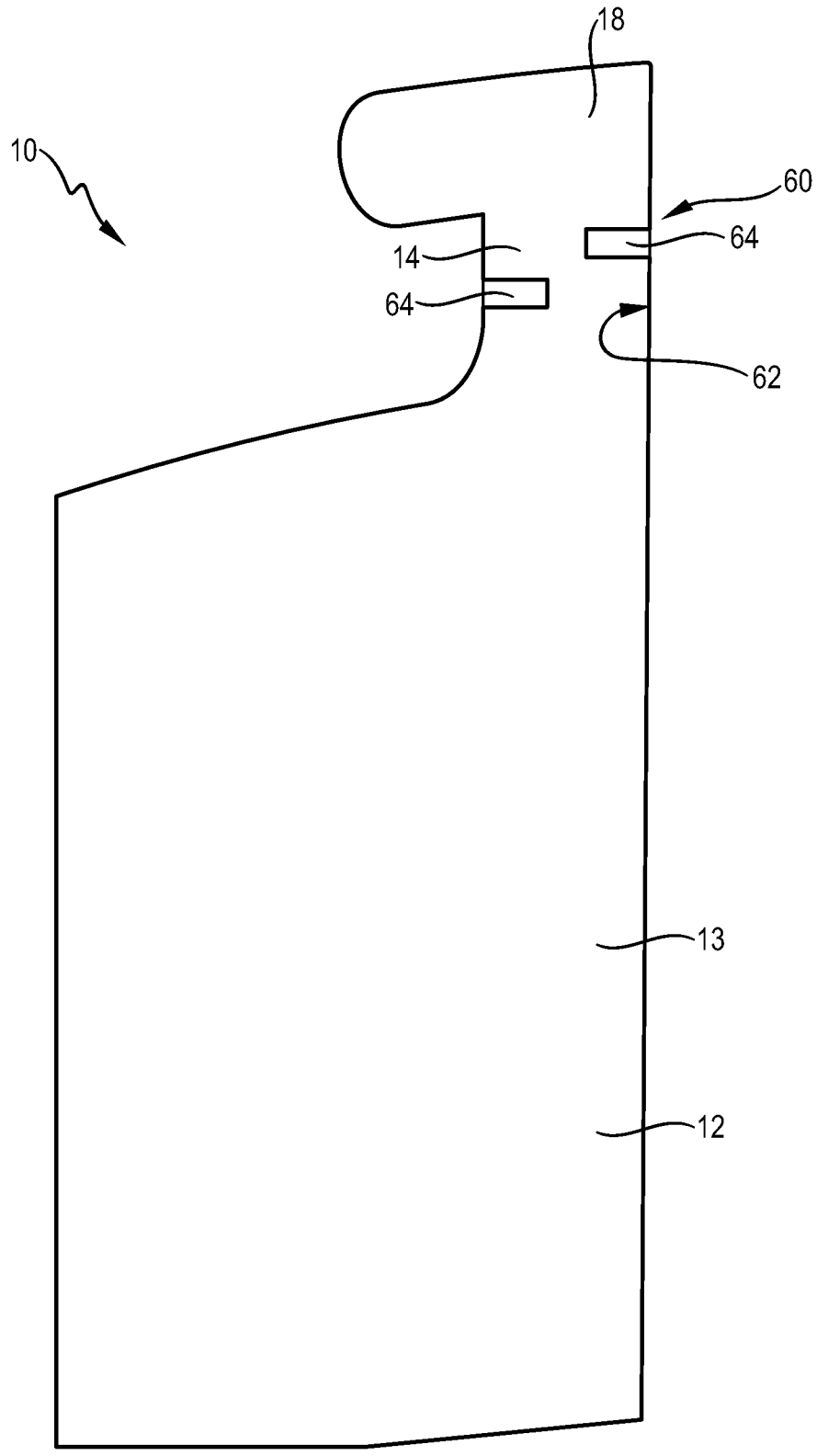


Fig. 5



METHOD OF IMPROVING RE-CLOSURE OF OXIDATIVE HAIR COLORANT SACHET WITH FOLDABLE RE-CLOSURE DEVICE

FIELD OF THE INVENTION

[0001] The present invention relates to a method of maintaining chemical reactivity of an oxidative hair colorant in an opened flexible sachet, which is stored for some time. The reason to store such an opened sachet is that prior to use of an oxidative hair color the ingredients need to be tested to ensure they have no adverse reaction by users. This is often done by using a small amount of the product for a skin test, which requires opening of the sachet, and extracting a small sample for the skin test. It is of course important to ensure that the sachet is closed again after extracting the sample to prevent premature oxidation. The quality of this re-closure will strongly influence how the hair colorant will perform when using it as intended. The method according to the present invention ensures maintaining chemical reactivity by improving the quality of the re-closure by intuitively inducing safe and tight re-closure by users of such hair colorant. This is achieved by providing the sachet to the user in a configuration already in its re-closure position, while the sachet has not been opened yet.

BACKGROUND OF THE INVENTION

[0002] Colorant products for oxidative dyeing of hair are often provided using a package kit comprising an oxidative hair dye component and a developer component with an oxidizing agent. The hair dye component is often in the form of a cream and stored in an aluminum tube and the developer component is often provided in a plastic bottle. To obtain a ready to use hair color product, the hair dye component is dispensed into the bottle containing the developer component. Both are blended in the bottle before applying to the hair. Alternatively the components are poured together into a bowl and blended.

[0003] The hair dye component is relatively reactive to oxidation. The sachet must be resistant to chemicals and must exhibit excellent barrier properties especially against oxygen from air. Aluminum tubes meet these requirements and often have the benefit of being re-closable when being provided with a screw cap. However recently sachets have become available being made of material with the desired barrier properties and resistance to chemicals, while being significantly less expensive, able to be filled with exactly a single usage dose/quantity and allowing complete emptying, and having a much smaller ecological footprint.

[0004] One of the remaining drawbacks of sachets was lack of convenient re-closure. This has also recently been addressed by providing sachets with a pouring spout, defined as a narrowed region relative to the main reservoir. This allows creating only a small opening for extracting hair dye component from the sachet by tearing off the tip of the pouring spout. A small opening has the benefit of easier handling when pouring from the spout, less exposure to entry of oxygen from the air through the opening versus a larger opening. In addition, the spout can be made such that it comprises a closure element. The closure element provides the pouring spout region of the sachet with a stiffness allowing the sachet material to maintain its configuration such that once it is folded onto itself it remains in this position. If folded tightly onto itself the fold of the pouring spout then prevents oxygen (respectively air) from entering the sachet. Of course, this is only achieved if the user creates the fold properly after first opening.

[0005] Therefore, there is a need for providing such an improved re-closable sachet for a hair dye component in a way, which ensures for one that users of such a hair dye component actually re-close the sachet. But also that the re-closure is of a quality that the remaining amount of hair dye component in the sachet remains available for oxidative hair coloring by preventing oxygen/air from entering through the sachet opening.

SUMMARY OF THE INVENTION

[0006] The present invention relates to a method of maintaining chemical reactivity of an oxidative hair dye component while being stored in an opened flexible sachet by increasing the user compliance with the re-closure step of a usage regime of said oxidative hair dye component. This is achieved by providing a sachet where it is folded into its re-closure configuration already as provided before opening the sachet. This causes the user to unfold the sachet from its folded re-closure position into an extended position to facilitate opening and extracting some oxidative hair dye component from the sachet before folding the sachet back into its re-closed configuration. This provides the user with an experience of the re-closed position of the sachet, guidance that re-closure is possible and desired and guidance how to achieve this properly by having to undo it.

DETAILED DESCRIPTION OF THE INVENTION

[0007] The method according to the present invention is particularly developed for situations where a small amount of oxidizing hair dye component is taken out of the sachet and the remainder of the hair dye component needs to be safely stored for some additional time. Of course this may happen e.g. when short hair is colored and the quantity of hair dye component in a sachet is sufficient for multiple applications, such that after one coloring a second coloring is planned at a later time and the sachet needs to be properly closed until a second application. There is also a usage regime according to which sensitivity to the hair dye component needs to be assessed sufficiently prior to full hair coloring using the hair dye, hence this is another required intermediate storage in an open sachet of the hair dye component after opening of the sachet. Such storage in an open sachet may result in oxidized hair dye component due to exposure to air (respectively the oxygen in air). The problem with such oxidized component is that it will no longer be available for coloring hair; it may dilute the available amount of hair color and cause fainting of the intended color result; also such oxidized hair dye may result in off-colorations due to undesired reactions.

[0008] The usage regime mentioned above comprises evaluating suitability to use an oxidative hair dye component for coloring the hair of a person without causing an unacceptable skin reaction. This is done by opening the sachet and extracting a minor amount of the oxidative hair dye component from the opened sachet and then applying the oxidative hair dye component to the skin of the person, usually to the skin on the underarm of the person. The minor amount of oxidative hair dye component typically should be less than 20%, preferably less than 10%, more preferably less than

7.5% and most preferably 5% or less by weight of the total amount of oxidative hair dye component in the sachet prior to opening the sachet.

[0009] After extracting some oxidative hair dye component, it is necessary to close the sachet to prevent oxidation reaction of the hair dye component due to exposure to air oxygen through the opening. The oxidative hair dye component remains on the skin for a predetermined amount of exposure time and is removed afterwards. After a reaction time the skin is visually inspected in the area where the oxidative hair dye component had been applied and it is decided whether the oxidative hair dye component is causing an unacceptable skin reaction or not. Provided no unacceptable skin reaction is caused conventional hair coloring using the oxidative hair dye component can progress. The preferred exposure time is at least as long as the recommended usage time of the oxidative hair dye component and in absolute terms at least 10 minutes, preferably at least 20 minutes, more preferably at least 30 minutes. The reaction time in this regime is at least 12 hours, preferably at least 18 hours, more preferably at least 24 hours. In general this time should be sufficient to be confident in light of the components used in the hair dye component that no undesirable skin reactions develop.

[0010] The method according to the present invention comprises hence two basic steps. In a first step a oxidative hair dye component in a flexible sachet is provided. The sachet has a pouring spout with a re-closure element with stiffness greater than the stiffness of the sachet. Thereby it provides capability of re-closing by folding a portion of the pouring spout onto itself and the re-closure element is keeping the folded pouring spout substantially in its folded configuration thereby reducing or preventing premature oxidation of the oxidative hair dye component in the sachet after opening. According to the invention the pouring spout is provided with the re-closure element in a configuration where it is folded onto itself into a re-closed position not just after but already prior to opening the sachet.

[0011] In a second step the re-closure element is unfolded by a user from its folded re-closure position into an extended position before opening and subsequently allows opening and extracting the oxidative hair dye component from the sachet for the skin test. This provides the person with an experience of the re-closed position of the sachet and guidance how to achieve this properly by having to undo it. This in term increases compliance and accuracy with the re-closure requirement.

[0012] In a third subsequent step the sachet is reclosed with the re-closure element by folding it onto itself into a re-closed position substantially or exactly as it was provided prior to opening said sachet.

[0013] A sachet for an oxidative hair dye component according to the invention comprises a reservoir with an internal volume and a pouring spout on the upper side of the reservoir for dispensing, i.e. discharging the hair dye component stored in the reservoir. The pouring spout is preferably not attached but integrally formed with the reservoir and projects with an elongated shape from an upper edge, i.e. upper side of the reservoir. The width of the pouring spout is smaller than the width of the reservoir, whereby the pouring spout can be inserted into a bottleneck of a bottle as second package in a hair coloring kit. An inner flow channel of the pouring spout is in fluid communication with the internal volume of the reservoir.

[0014] In order to provide a tight seal prior to usage of the hair dye component a removable tear tab is placed at the dispensing end of the pouring spout.

[0015] As the width of the pouring spout is relatively small, a hair dye sachet with a relatively short tear distance is provided, so that the fingers of the user stay in control during the opening action, i.e. when the tear tab is being removed. In order to remove the tear tab the fingers of one hand rest below the dispensing end of the pouring spout, while the fingers of the other hand remove the tear tab.

[0016] The hair dye sachet is made of a laminate structure resulting in the flexibility characteristics of the sachet. The laminate structure is chemically resistant to the hair dye component, i.e. the laminate is compatible with the component provided in the sachet. The sachet may be designed as a flat and reclined, i.e. pillow-type pouch, which is easy to store or as an upstanding pouch, i.e. with an upright configuration comprising a base for supporting the sachet in the upright position. A sachet with an upright position is advantageous to handle, in particular, it can be set aside once the tear tab is removed without leakage of the hair dye component.

[0017] The sachet may be made of one piece of a flexible laminate folded at one longitudinal edge and joined, i.e. sealed together at the remaining open edges and, thereby, providing a so-called "three-sided seal".

[0018] However, the laminate may also be folded at the two opposite longitudinal edges and sealed at the backside of the sachet and, thus, providing a so-called "fin-seal". The usage of one piece of laminate which is folded at least at one outer longitudinal edge results in a reduction of laminate-material during the production process of the sachet.

[0019] However, a sachet with a "fin-seal" is preferred as the capacity of the sachet relative to its width is increased. Further, as the longitudinal edges can be inflated more easily during the filling process, the filling speed of the hair dye compound into the sachet can be increased, as well.

[0020] However, the flexible sachet may also be made of two pieces of flexible laminate, which are stacked upon each other and joined, i.e. sealed, at their outer circumference.

[0021] With respect to the reservoir, the pouring spout may be positioned symmetrically, i.e. in the centre, or may be positioned asymmetrically. Preferably, the pouring spout is aligned with an outer longitudinal edge of the reservoir that is folded along said edge.

[0022] Generally, the spout, i.e. the width of the spout, comprises a sealing portion and a flow channel portion. A symmetric, i.e. centric spout comprises two sealing portions and one flow channel portion, whereas a spout being aligned with the outer longitudinal edge comprises only one sealing portion and one flow channel portion as the sealing function on the remaining side is provided by the folded edge of the laminate. In order to maximize the flow channel relative to a given spout diameter, a spout aligned with the outer edge is preferred, as it allows a wider flow channel and subsequently an easier dispensing/discharging experience.

[0023] The hair dye sachet of the present invention is easy to handle and has decreased weight as compared to aluminum tubes. It requires, inter alia, less material as well as reduced amounts of energy for manufacturing and transportation and, thus, meets sustainability and cost-reduction requirements by leaving a reduced ecological footprint vs. conventional aluminum tube packaging.

[0024] The pouring spout comprises at least one re-sealing element for reclosing the dispensing end once the tear tab has been removed.

[0025] It is advantageous to provide a reclosing feature in view of the requirement to conduct a skin test 24 hours before applying the ready to use hair color product to the hair. In order to conduct a skin test, the consumer removes a certain amount of the hair dye component out of the sachet and applies it to the skin in order to examine if skin irritation occurs. In addition, some consumers prefer not to use the hair dye component in a single dose, but rather in a split dose, i.e. multi dose, e.g. for hairline dyeing. After conducting the skin test or after removing a certain amount of the hair dye component for other purposes, the consumer is able to reclose the sachet in order to store the content in a safe manner Further, exposure of the hair dye component to air, and in particular to oxygen, is limited, thereby protecting the content of the sachet from oxidation.

[0026] The re-sealing element for reclosing the dispensing end has a stiffness that is greater than the stiffness of the laminate structure. The term "stiffness" is defined as the rigidity of the re-sealing element, i.e. the extent to which the pouring spout resists deformation in response to an applied force. In other words, the stiffness is a measure of the resistance offered by the pouring spout to deformation. The rigidity of the re-sealing element provides a tight and secure closure—once the pouring spout is re-closed. Alternative mechanical means like snap and seal means or hook and loop means can provide maintenance of the re-closed configuration.

[0027] The re-sealing element may be integrally formed with or may be attached to the hair dye sachet. The stiffness re-sealing element extends at least partially along the length of the pouring spout and crosses a folding line along which the pouring spout can be folded and flapped towards the reservoir. Further, the re-sealing element may also cross over to the reservoir, i.e. extend at least partially along the length of the reservoir.

[0028] Preferably, the pouring spout is re-closable by folding the pouring spout toward the outer surface of the reservoir. Due to increased stiffness/rigidity of the re-sealing element compared to the flexibility of the laminate structure, the pouring spout stays in contact with the outer surface of the reservoir and does not flex back. In other words, the rigidity/tension of the re-sealing element keeps the pouring spout in the folded up position. Once the hair dye sachet is reclosed, the inner flow channel of the pouring spout is substantially blocked, thereby preventing spillage of the hair dye component and entry of oxygen (respectively air) in the opposite direction.

[0029] Preferably, the width of the reservoir is 40% to 60%, more preferably between 47% and 53% of its height and further preferably, the width of the elongated shape of the pouring spout is 40% to 100%, more preferably of 75% of the pouring spout height.

[0030] In particular, the reservoir may have a width of 40 mm to **90** mm, preferably 45 mm and 60 mm and more preferably 50 mm and 54 mm The reservoir height is preferably from 110 mm to 160 mm, preferably from 116 mm and 130 mm The pouring spout may have a width of 15 mm to 25 mm and a height of 15 mm to 30 mm. More preferably, the external width of the pouring spout is 16 mm and the internal width of the spout, i.e. of the width of the flow channel is 14 mm

[0031] The re-sealing element may be a metal strip, plastic strip, band, adhesive clamp, wire tie, rigid non-permanent adhesive bonding tab and/or an additional rigid layer attached to or inserted in the laminate structure. In the alternative hook and loop means or snap and seal means, both providing mechanical attachments to maintain a re-closure position, can be provided.

[0032] In case the re-sealing element is an adhesive clamp it comprises a tape having one side of the tape coated with an adhesive substance and a clamping strip of foldable non-elastic material attached to the adhesive side of the tape. The other side of the tape is attached to the outer surface of the pouring spout. Preferably, the tape is wider and longer than the clamping strip in order to seal a puncture of the laminate structure by an edge of the clamping strip. Preferably, the tape and/or the adhesive substance may be transparent so that printings on the outer surface of the pouring spout are visible. Preferably, the adhesive clamp may comprise a printed area over the tape at the area of the clamping strip. Preferably, the print comprises at least one folding mark indicating the folding line along which the pouring spout should be folded. Preferably, the printed area is non-transparent, and further preferably, slightly larger than the clamping strip to cover and hide the clamping strip when viewed from the side of the adhesive clamp.

[0033] In case the re-sealing element is a wire tie, the wire tie is preferably attached to the outer surface of the pouring spout and extends downwards to and along a specific distance on the outer surface of the reservoir. Once the tear tab has been removed and the sachet has to be reclosed, the pouring spout can be folded along the folding line and flapped towards the reservoir. The tension of the wire tie keeps the pouring spout in the folded up position.

[0034] In case the re-sealing element is an additional rigid layer inserted in the laminate structure would provide a re-sealing element which is not visible to the consumer.

[0035] According to an embodiment, the tear tab is integrally formed with the pouring spout.

[0036] Preferably, the tear tab is aligned with an outer edge of the pouring spout and extends in orthogonal direction to the outer edge of the pouring spout.

[0037] This embodiment provides an ergonomic design, which enables the user to open the sachet in a facile manner The sachet exhibits an asymmetric shape and is preferably made of one piece of a flexible laminate folded along one longitudinal edge, the fold forming an alignment of the reservoir, spout and tear tab. In other words, the longitudinal edge forming the alignment has no joint, which would decrease the width of the inner flow channel with respect to a given width of the spout.

[0038] According to an embodiment, the hair dye sachet comprises a pre-defined tearing line between the tear tab and the dispensing end of the pouring spout along which the tear tab is teared when the sachet is opened.

[0039] In order to facilitate opening of the sachet, i.e. in order to reduce the force required for tearing, a tearing aid may be provided at the dispensing end. Such aid can be selected from tear notch, perforations, laser scoring/cut for tear guidance, orientation of individual material layers, e.g. use of easy tear films such as a polyethylene sealing layer, or use of aluminum as a guidance material, for example. This allows for an easy initiation as well as good control of the tear direction during opening. A tear notch, e.g. in form of a

simple cut, triangular cut or semi circular cut creates a focus point for the applied force of the user and facilitates initiation of the tear procedure.

[0040] However, design of the sachet allows for the use of accessories such as scissors, blades or knifes may be used for opening, as well. Accordingly, cutting through the laminate structure of the sachet also results in defined edges.

[0041] According to an embodiment the pouring spout comprises at its inner perimeter at least one flow restrictor for restricting the flow of the hair dye component when the component dispenses.

[0042] Preferably, the flow restrictor may be provided in case the hair dye component stored in the reservoir has low viscosity, such as liquid hair dye components. By means of a flow restrictor the width of the inner flow channel is narrowed, thus, leading to spill prevention during the opening action as well as to a limited flow rate of the hair dye component when it dispenses. The pouring spout is still adapted to the opening of a second package while providing a flow restriction leading to a mess-free dispensing. In other words, by means of a flow restrictor the same flow velocity can be provided for hair dye compounds with different viscosities.

[0043] The flow restrictor may have the shape of a recess, indentation, notch or bulge, for instance. The shape, i.e. geometry of the flow restrictor is adapted to the desired flow velocity of the hair dye compound. The flow restrictor is easy to integrate into the pouring spout. Preferably, the flow restrictor may be provided by means of removable and exchangeable sealing bars integrated in the manufacturing tools.

[0044] According to an embodiment, the at least one flow restrictor is formed as a bulge projecting inside the pouring spout.

[0045] Such a bulge projects inside the inner flow channel, thereby limiting the flow-through passage within the pouring spout.

[0046] According to an embodiment, at least two bulges are formed in a staggered arrangement.

[0047] The staggered arrangement of the at least two bulges further limits the flow rate of the hair dye component. The bulges may be arranged in an overlapping or in a non-overlapping manner. An overlapping arrangement provides a further limitation of the flow rate.

BRIEF DESCRIPTION OF THE DRAWINGS

[0048] The method of the invention uses a sachet of a specific design which is described in more detail below with reference to illustrative embodiments, wherein:

[0049] FIG. **1** shows a back view of an embodiment of the hair colorant container;

[0050] FIG. **2** shows a front view of a hair colorant container with a snap and seal closure;

[0051] FIG. **3** shows the front view of another embodiment of the hair colorant container with a wire tie as a re-sealing element;

[0052] FIG. **4** shows the front view of another hair colorant container with a hook and loop tape closure; and

[0053] FIG. **5** shows another embodiment of the hair colorant container with a flow restrictor.

DETAILED DESCRIPTION OF THE SACHET ACCORDING TO THE INVENTION AS SHOWN IN THE EMBODIMENTS OF THE DRAWINGS

[0054] FIG. **1** shows a container for a hair colorant component **10** in the form of a flexible sachet **10** for storing a hair dye component or a developer component. The sachet **10** comprises a reservoir **12** with an internal volume **13**, a pouring spout **14** being in fluid communication with the internal volume **13** and having a dispensing end **16** and a removable tear tab **18**. The tear tab **18** is attached at the dispensing end **16** for sealing the sachet **10** before the sachet **10** has been opened.

[0055] The pouring spout **14** and the tear tab **18** are integrally formed with the reservoir **12** and are aligned at one outer longitudinal edge **30** of the reservoir **12**. The pouring spout **14** projects from an upper side **20** of the reservoir **10** and has an elongated shape with a width **22** being smaller than the width **24** of the reservoir **10**. The tear tab **18** is placed at the dispensing end **16** in a perpendicular manner with respect to the pouring spout **14**.

[0056] Further, the pouring spout **14** comprises a grip zone **26** which extends substantially along the width **22** of the spout **14** and is adapted with its dimensions to the fingers of a user. Thus, the user is enabled to open the sachet **10** in an easy manner by clamping the sachet **10** in the region of the pouring spout **14**, namely at the grip zone **26** and thereby providing a spill prevention. By clamping the pouring spout **14**, the fingers of the user act as a temporary valve element. Opposite walls of the spout **14** are pressed together thereby substantially preventing the hair dye component from spilling out of the reservoir **12** when the tear tab **18** is being removed.

[0057] After opening the sachet **10**, the hair dye component can be dispensed which usually is into a second package, like a bottle, comprising the respective other hair colorant component (oxidizing component or hair dye component, respectively) to provide a ready to use mixed hair color product.

[0058] In order to facilitate the removal of the tear tab **18**, a pre-defined tearing line **28** between the tear tab **18** and the dispensing end **16** of the pouring spout **14** is provided. The pre-defined tearing line **28** may be provided by means of a tear notch, perforations, laser scoring/cut for tear guidance, specific orientation of individual material layers, e.g. the use of easy tear films, such as a polyethylene layer, or the use of aluminum as a guidance material, for example. This allows an easy tear initiation as well as a controlled tear direction. The sachet **10** according to FIG. **1** shows a tear notch **36**, which creates a focus point for the applied force of the user and makes it easier to initiate the tear.

[0059] The width **24** of the reservoir **12** is 65 mm and the height **38** of the reservoir **12** is 110 mm, whereas the pouring spout **14** has a width **22** of 16 mm and a height **40** of 30 mm. The internal width of the spout **14**, i.e. of the flow channel **42** is 14 mm. Thus, on the one hand the internal flow channel **42** of the pouring spout **14** is as wide as possible to enable easy and fast dispensing. On the other hand, the spout width **22** is in line with the opening diameter of a second package e.g. a bottle having a defined standard internal neck diameter of 17 mm in which the spout **14** can be inserted to dispense the content of the sachet.

[0060] The outer perimeter of the pouring spout **14** has a profile that expands to an oval shape when opened. Thus, a defined section of the outer wall of the spout **14** does not lie completely against the inner wall of the second package opening e.g. a bottleneck, but leaves a passage open through which air may be released from the inside of the bottle during dis-

pensing/discharging the sachet content. Therefore, a fast, complete and mess free dispensing is achieved.

[0061] When the spout **14** gets inserted into the bottleneck in a most flat condition the angled tear notch cut **36** ensures that the top end of the spout **14** has a width **22** which is narrower than the internal bottleneck diameter. The angled notch **36** allows an easy insertion of the spout **14**. Through the docking action, the spout **14** gets pushed against the inner wall of the bottleneck and facilitates the opening of the spout.

[0062] The sachet **10** is made of a flexible laminate structure **44** which comprises at least three layers, preferably four layers. The laminate **44** of the present embodiment has a thickness of 100 μm to 150 μm and comprises four layers.

[0063] The first layer facing the inner volume **13** of the sachet **10** is a polyethylene layer and has a thickness of 70 μm to 100 μm. The first layer is produced by means of an extrusion foaming process.

[0064] The second layer following the first layer has a thickness of 18 μm to 25 μm and comprises polyethylene and ethylene methacrylic acid polymer or polyethylene and ethylene methacrylic acid polymer.

[0065] The third layer is made of aluminum and acts as a barrier layer. The aluminum layer has a thickness of 9 μm.

[0066] The first, the second and the third layer are joined together by means of extrusion lamination. Such a laminate structure **44** results in sufficient chemical and mechanical stress resistance.

[0067] The fourth layer is made of polyamide with a thickness of 5 μm or of polyethylenterephthalat with a thickness of 12 μm. The fourth layer comprises a printing applied on the surface facing the aluminium layer and is joined to the third layer by means of adhesive lamination.

[0068] The laminate structure **44** of the present embodiment shows substantially no corrosion and/or migration of particles of hair dye component, like dye pigments, surfactants and aqueous ammonia solution.

[0069] The laminate **44** is folded at the two opposite longitudinal edges **30**, **32** of the sachet **10** and sealed at the backside and provide a so-called "fin-seal" **34**. As the pouring spout **14** is aligned with the outer longitudinal edge **30** of the reservoir **12**, the spout **14** comprises one sealing portion **46** and one flow channel portion **42** as the sealing function on the remaining side **30** is provided by the folded edge of the laminate **44**. Such a design results in a maximized flow channel **42** relative to a given spout width.

[0070] The sachet for a hair dye components **10** shown in FIG. **2** comprise a re-sealing element **48**, respectively, for reclosing the dispensing end **16** of the pouring spout **14** once the tear tab **18** has been removed. The pouring spout **14** is re-closable by folding and fixing the pouring spout **14** at the outer surface of the reservoir **12** by means of the re-sealing element **48**. Once the sachet for a hair dye component **10** is re-closed, the inner flow channel **42** of the pouring spout **14** is substantially blocked, thereby preventing spillage of the hair dye component or entry of air, respectively oxygen.

[0071] The re-sealing element **48** shown in FIG. **2** is a snap and seal closure **50**, whereas the re-sealing element **48** shown in FIG. **3** is a wire tie **52** and the re-sealing element **48** shown in FIG. **4** is a hook and loop tape closure **54**.

[0072] According to FIG. **3**, the wire tie **52** is attached at the outer surface of the pouring spout **14** and extends downwards to and along a specific distance on the outer surface of the reservoir **12**. Once the tear tab **18** has been removed and the sachet **10** has to be reclosed, the pouring spout **14** can be folded along a folding line and flapped towards the reservoir **12**. The tension/rigidity of the wire tie **52** keeps the pouring spout **14** in the folded position providing proper re-closure.

[0073] The hook and loop tape closure **54** (cp. FIG. **4**) and the snap and seal closure **50** (cp. FIG. **2**) consist of two elements **56**, **58**, namely of a male **56** and a female element **58**, wherein one of the elements **56**, **58** is attached at the outer surface of the pouring spout **14** and the other one is attached at the outer surface of the reservoir **12**, respectively. In order to reclose the sachet **10**, the pouring spout **14** is folded along the folding line and is secured at the reservoir **12**. The male and female elements **56**, **58** engage and keep the pouring spout **14** in the folded position.

[0074] FIG. **5** shows a sachet for a hair dye component **10** comprising a flow restrictor **60** at the inner perimeter **62** of the pouring spout **14**. The flow restrictor **60** is provided in case the hair dye component stored in the reservoir **12** has a low viscosity, such as liquid hair dye components. By means of the flow restrictor **60** the width of the inner flow channel **42** is narrowed, thus, leading to spill prevention during the opening action as well as to a limited flow rate of the hair dye component when it dispenses. The flow restrictor **60** has the shape of two bulges **64** projecting inside the pouring spout **14** in a staggered manner.

Comparison Experiments

[0075] A hair dye sachet according to FIG. **3** was provided to users who were asked to start to perform a skin test. Some were given the sachet with the pouring spout already folded onto itself while others received it unfolded. In discussions amongst these individuals after the initial steps of the skin test it became clearly stated that having the pre-folded configuration increases the user's urge to unfold the sachet and that draws attention to the spout area. In some comment, it was expressed that it is very hard for users to make the connection how to use the re-closure mechanism without being shown and that having to unfold it prior to opening was providing just the right re-closure indication.

[0076] It was consensus that the key benefit for having the spout folded down prior to opening is to have an idea registered in users minds that sachet needs to be folded down to reclose it. All users confirmed that this would intuitively strengthen their compliance with the re-closure requirement and ensure accuracy of tight closure thus providing an improved hair coloring result.

[0077] 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 "

[0078] Every document cited herein, including any cross referenced or related patent or application and any patent application or patent to which this application claims priority or benefit thereof, is hereby incorporated herein by reference in its entirety unless expressly excluded or otherwise limited. The citation of any document is not an admission that it is prior art with respect to any invention disclosed or claimed herein or that it alone, or in any combination with any other reference or references, teaches, suggests or discloses any such invention. Further, to the extent that any meaning or definition of a term in this document conflicts with any meaning or definition of the same term in a document incorporated

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

[0079] While particular embodiments of the present invention have been illustrated and described, it would be obvious to those skilled in the art that various other changes and modifications can be made without departing from the spirit and scope of the invention. It is therefore intended to cover in the appended claims all such changes and modifications that are within the scope of this invention.

[0080] List of Reference Signs:

[0081] **10** sachet for a hair dye component

[0082] **12** reservoir

[0083] **13** internal volume

[0084] **14** pouring spout

[0085] **16** dispensing end

[0086] **18** removable tear tab

[0087] **20** upper side of the reservoir

[0088] **22** width of the spout

[0089] **24** width of the reservoir

[0090] **26** grip zone

[0091] **28** pre-defined tearing line

[0092] **30** outer longitudinal edge

[0093] **32** other outer longitudinal edge

[0094] **34** fin seal

[0095] **36** tear notch

[0096] **38** height of the reservoir

[0097] **40** height of the pouring spout

[0098] **42** flow channel

[0099] **44** laminate

[0100] **46** sealing portion of the spout

[0101] **48** re-sealing element

[0102] **50** snap and seal closure

[0103] **52** wire tie

[0104] **54** hook and loop tape closure

[0105] **56** male element

[0106] **58** female element

[0107] **60** flow restrictor

[0108] **62** inner perimeter of the pouring spout

[0109] **64** bulges

What is claimed is:

1. Method of maintaining chemical reactivity of an oxidative hair dye component while being stored in an opened flexible sachet by increasing the user compliance with the re-closure step of a usage regime of said oxidative hair dye component, said regime comprising the steps of

a. evaluating suitability to use said oxidative hair dye component for coloring the hair of a person without causing an unacceptable skin reaction by opening said flexible sachet and extracting a minor amount of said oxidative hair dye component from the opened flexible sachet for applying said minor amount of oxidative hair dye component to the skin of said person,

b. closing said sachet to prevent oxidation reaction of said oxidative hair dye component due to exposure to air oxygen through said opening,

c. allowing said oxidative hair dye component to remain on said skin of said person for a predetermined amount of exposure time and removing the oxidative hair dye component from said skin,

d. after a predetermined reaction time visually inspecting the skin of said person where said oxidative hair dye component had been applied and deciding whether said oxidative hair dye component is causing an unacceptable skin reaction or not

e. using said oxidative hair dye component to color the hair of said person, provided no unacceptable skin reaction was caused by said oxidative hair dye component.

Said method comprising the steps of

I) providing said oxidative hair dye component in said flexible sachet, said flexible sachet having a laminate structure for storing said oxidative hair dye component and said sachet comprising:

a reservoir with an internal volume for storing said oxidative hair dye component, having a reservoir height and a reservoir width,

a pouring spout being in fluid communication with the internal volume and having a dispensing end for dispensing said oxidative hair dye component,

the pouring spout projecting from an upper side of the reservoir and having an elongated shape with a width being smaller than the width of the reservoir,

a removable tear tab at the dispensing end, said tab sealing the sachet prior to opening said sachet,

the pouring spout comprises a re-closure element for reclosing the dispensing end once the tear tab has been removed, the re-closure element provides capability of reclosing by folding a portion of said pouring spout onto itself and said re-closure element essentially keeps said folded pouring spout in said folded position either by having a stiffness being greater than the stiffness of the laminate structure or by mechanical snap and seal means or by mechanical hook and loop means and the re-closure element thereby reducing or preventing premature oxidation of said oxidative hair dye component in said sachet after opening,

said pouring spout being folded onto itself into a re-closed position already as provided prior to opening said sachet,

II) unfolding said re-closure element from said folded re-closure position into an extended position for opening and extracting said amount of said oxidative hair dye component from said sachet, thereby providing experiential guidance on the re-closed position of said sachet and thereby increasing compliance with the re-closure requirement.

2. The method according to claim **1**, having a third subsequent step

III) reclosing said sachet with the re-closure element by folding it onto itself into a re-closed position as it was provided prior to opening said sachet.

3. The method according to claim **1**,

wherein said re-closure element comprises an element selected from a metal strip, plastic strip, band, and/or an additional rigid layer, which layer is attached to or inserted in the laminate structure.

4. The method according to claim **3** wherein the re-closure element is a wire tie.

5. The method according to claim **1**,

wherein said exposure time is at least as long as the recommended usage time of said oxidative hair dye component.

6. The method according to claim **1** wherein said exposure time is at least 10 minutes.

7. The method according to claim **1** wherein said reaction time is at least 24 hours.

8. The method according to claim **1**,
wherein said minor amount of said oxidative hair colorant is less than 10% by weight of the total amount of said oxidative hair dye component in said sachet prior to opening said sachet.

9. The method according to claim **8**,
wherein said minor amount of said oxidative hair colorant is 5% or less by weight of the total amount of said oxidative hair dye component in said sachet prior to opening said sachet.

10. The method according to claim **1**,
wherein said pouring spout is integrally formed with said reservoir.

11. The method according to claim **10**
wherein said tear tab is integrally formed with said pouring spout.

12. The method according to claim **1**
wherein said flexible sachet comprises a pre-defined tearing line between the tear tab and the dispensing end of the pouring spout, along which the tear tab is torn when the sachet is opened.

13. The method according to claim **12**
wherein said tear tab is completely torn off from said sachet.

14. The method according to claim **1**,
wherein said pouring spout comprises at its inner perimeter at least one flow restrictor for restricting the flow of said hair dye component when it dispenses.

15. The method according to claim **14**,
wherein said at least one flow restrictor is formed as a bulge projecting inside the pouring spout.

16. The method according to claim **1**,
wherein said reservoir width is from 47% to 53% of the reservoir height.

17. The method according to claim **1**,
wherein said reservoir height is between 110 and 160 mm.

18. The method according to claim **1**,
wherein said reservoir width is between 45 and 60 mm.

19. The method according to claim **1**,
wherein said width of said pouring spout is 30% or less of the width of said reservoir.

20. A flexible sachet for use in the method according to claim **1**,
said flexible sachet having a laminate structure for storing a hair dye component and said sachet comprising:
a reservoir with an internal volume for storing said oxidative hair dye component, having a reservoir height and a reservoir width,
a pouring spout being in fluid communication with the internal volume and having a dispensing end for dispensing said oxidative hair dye component,
the pouring spout projecting from an upper side of the reservoir and having an elongated shape with a width being smaller than the width of the reservoir,
a removable tear tab at the dispensing end, said tab sealing the sachet prior to opening said sachet,
the pouring spout comprises a re-closure element for reclosing the dispensing end once the tear tab has been removed, the re-closure element having a stiffness being greater than the stiffness of the laminate structure and the re-closure element providing capability of reclosing by folding a portion of said pouring spout onto itself and said re-closure element essentially keeping said folded pouring spout in said folded position thereby reducing or preventing premature oxidation of said oxidative hair dye component in said sachet after opening,
said pouring spout being folded onto itself into a reclosed position already as provided prior to opening said sachet.

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