



US 20140069839A1

(19) **United States**(12) **Patent Application Publication**
Colin(10) **Pub. No.: US 2014/0069839 A1**(43) **Pub. Date: Mar. 13, 2014**(54) **METHOD FOR MARKING A
SMALL-VOLUME SINGLE-DOSE
CONTAINER, AND CONTAINER THUS
MARKED**(75) Inventor: **Patrick Colin**, Amiens (FR)(73) Assignee: **UNITHER PHARMACEUTICALS**,
Amiens (FR)(21) Appl. No.: **14/115,145**(22) PCT Filed: **Apr. 30, 2012**(86) PCT No.: **PCT/FR2012/050961**

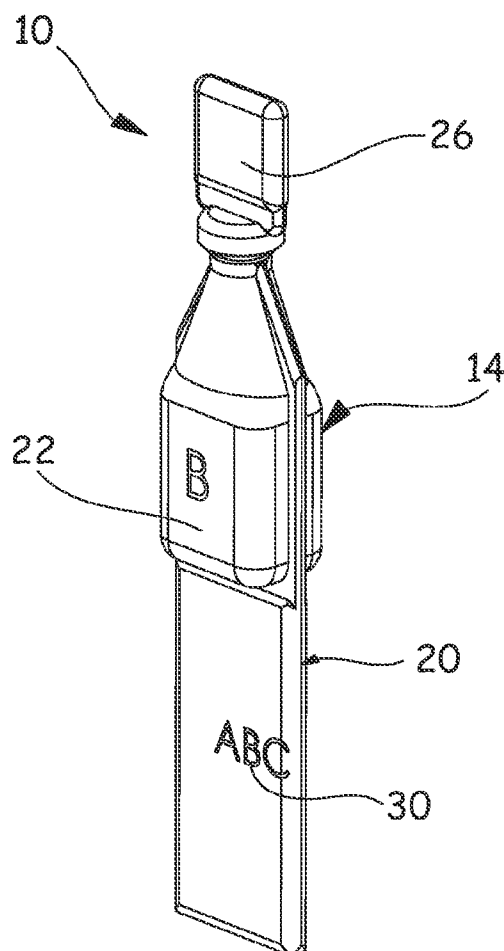
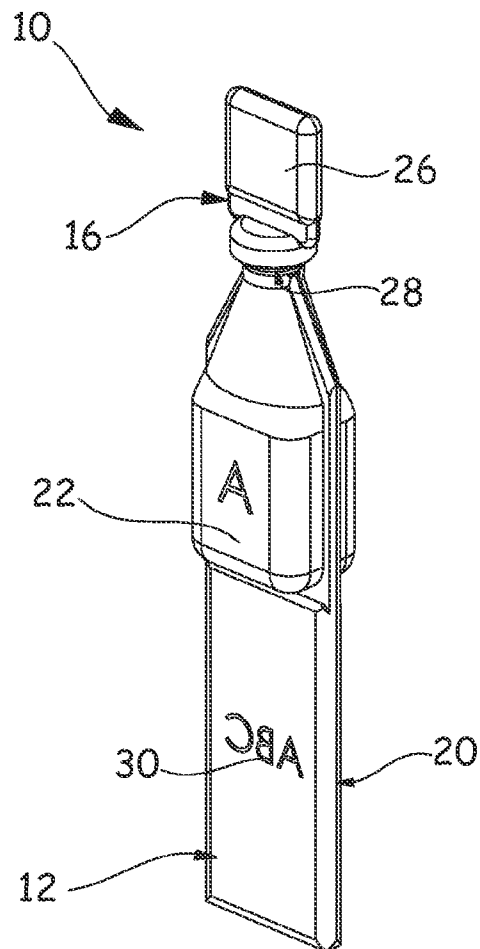
§ 371 (c)(1),

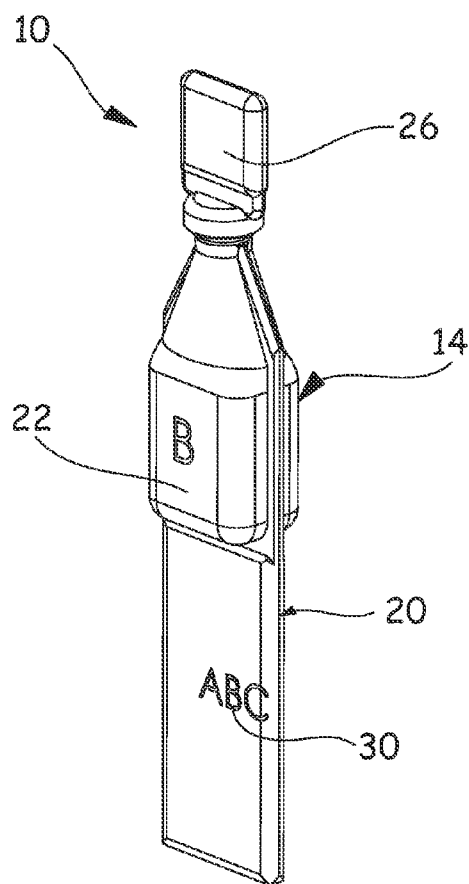
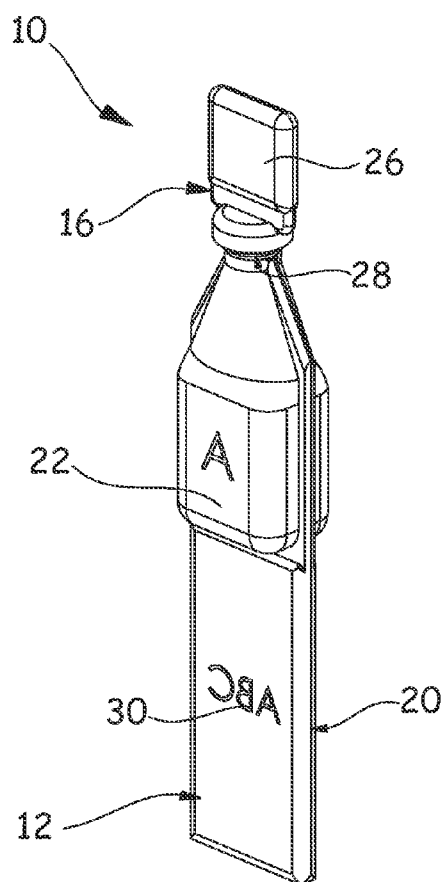
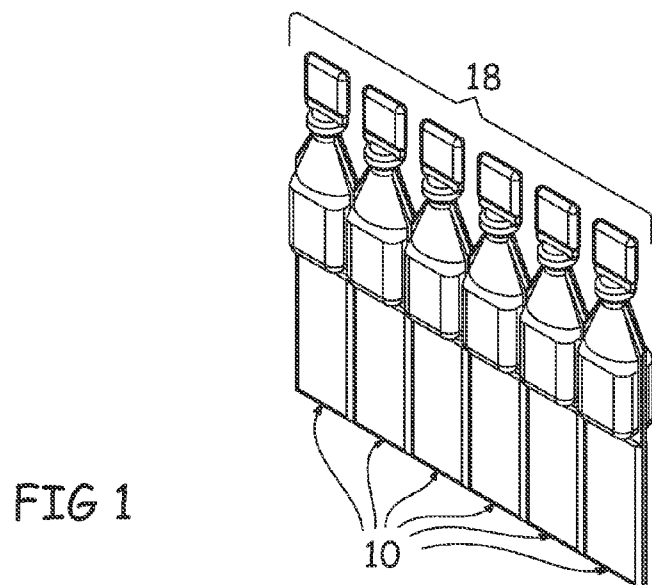
(2), (4) Date: **Nov. 1, 2013**(30) **Foreign Application Priority Data**

May 4, 2011 (FR) 1153786

Publication Classification(51) **Int. Cl.**
B65D 25/36 (2006.01)(52) **U.S. Cl.**
CPC **B65D 25/36** (2013.01)
USPC **206/459.5**; 156/60; 156/277(57) **ABSTRACT**

A method for marking a vial made from a material that is transparent or at least translucent, intended, in particular, for pharmaceutical and/or cosmetic use. The container includes a foot (12), a body (14) and a head (16), the foot taking the form of a tongue having two faces, one of which receives a label (32). The container is characterized in that a mark (30) is made on the face of the foot (12) that receives the label, prior to the affixing of the label, and in that the label is affixed to the face once the mark has been made, such that the label covers the mark.





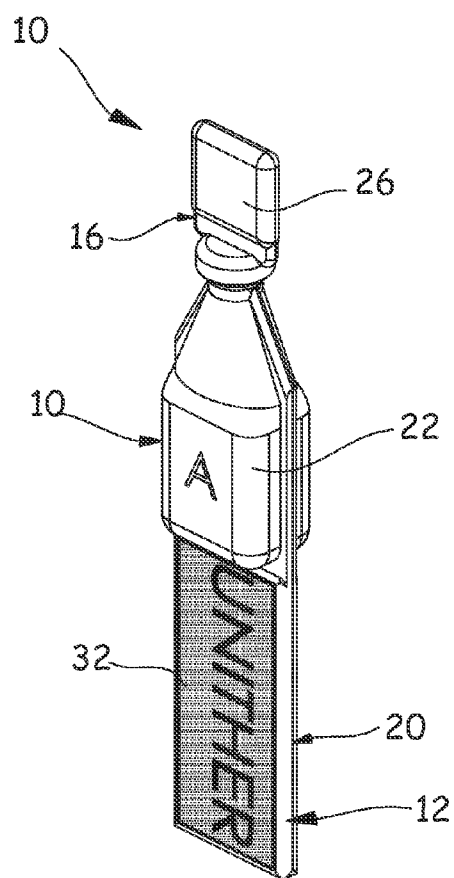


FIG 3A

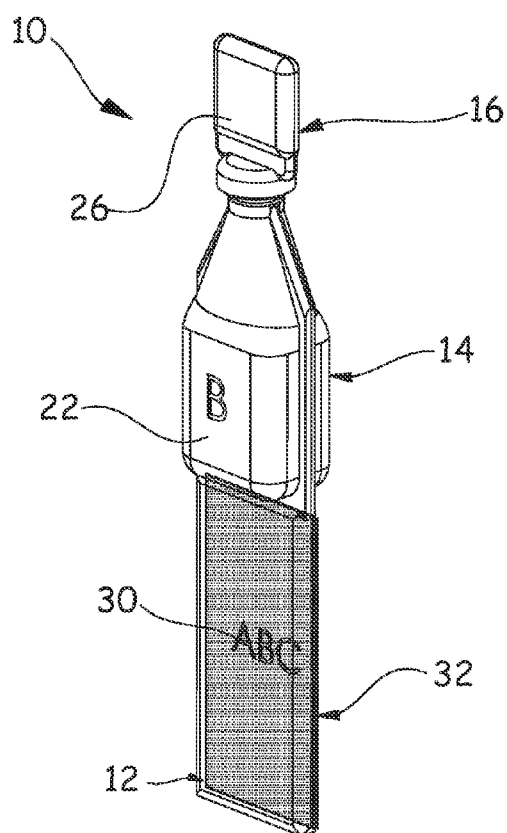


FIG 3B

**METHOD FOR MARKING A
SMALL-VOLUME SINGLE-DOSE
CONTAINER, AND CONTAINER THUS
MARKED**

[0001] This invention relates to a process for marking a small-capacity single-dose container.

[0002] The invention also covers the thus marked container. Small-volume single-dose container is defined as a container that is designed to contain volumes on the order of 0.1 to 5.0 ml.

[0003] These containers that are also called vials are therefore disposable. The small volume makes it possible not to waste the active product. Actually, certain products degrade upon contact with air and can become contaminated after opening or during use.

[0004] Also, the fact of using single-dose vials makes it possible to use a sterile product, effective for each application on the same patient or for treatments of different patients without transmitting what this is and by ensuring the effectiveness of the active ingredient.

[0005] In addition, handling is simple because each vial makes it possible to deliver the product that is contained therein in small quantities, with precision because of a suitable shape of said vials that comprise a neck that is generally conical in shape and an opening with a very small diameter.

[0006] The opening is obtained by removal of a seal, generally welded, in a very easy way, owing to a rotation of said seal relative to the body of the container. This seal is thus very resistant to accidental tearing and can be removed easily.

[0007] It is also noted that, because of their very small volume, these containers retain—due to the interplay of the phenomena of capillarity—the liquid in the body of the container when the latter is fluid and especially when the fluid is viscous.

[0008] The user is to exert a slight pressure on the body of the vial to release the product and to adjust exactly the moment of said release.

[0009] There are numerous applications, for example, for:

- [0010]** Eyewash,
- [0011]** Rhinology products,
- [0012]** Physiological serum,
- [0013]** Antiseptics,
- [0014]** Products for the treatment of asthma,
- [0015]** Cosmetic products.

[0016] These vials are manufactured in line and in very large numbers and are generally presented by lots of vials that are juxtaposed and connected to one another in a detachable way by their sides.

[0017] Because of the very small volume of such vials, it is also understood that this will create stresses.

[0018] The first is the gripping of the container with fingers, which is difficult to accomplish, primarily with adult fingers and all the more so when these fingers are large.

[0019] Also, the concept was developed of adding a tab to the body of the vial on the lower part to increase the size of the single-dose container dimensionally without thereby increasing the useful volume.

[0020] In addition to largely improving the gripping and the handling, this tab offers another advantage relative to the marking

[0021] Actually, the body of the container generally has a more or less curved shape that makes the affixing of a label difficult.

[0022] The thus added tab can be connected by welding during the manufacturing of the vial or factory-mounted with the vial by flattening the surfaces so as to constitute a flat tab, placed in the extension of the body of the vial, on the lower part.

[0023] Thus, the vials can receive a label that is connected by bonding, for example.

[0024] This label can therefore bear a logo, a mark, or an identification of the product.

[0025] Nevertheless, a problem exists, that of marking, during manufacturing on the production line, data connected to the specific production, i.e., the lot number, the manufacturing date, the expiration date for citing only these data.

[0026] However, these data should be marked in a stream on the containers. There are several marking methods, but the simplest and most widely used is the marking with ink by means of a print head. The marking is affixed to the tab, on the opposite surface from the one that bears the label.

[0027] Thus, in the arrangements of the prior art, a vial is used that is equipped with an extension in the form of a tab, of which one of the surfaces bears a label and the other surface bears a marking that can be read directly, printed on the spot.

[0028] This arrangement presents a drawback, that of subjecting the marking to external damage such as contact with liquids, in particular moisture, to temperature variations, to mechanical friction, for example the rubbing of fingers, and therefore to risks of at least partial erasure of the marking

[0029] However, it is prudent to ensure that the marking is permanent since without the information, the contents of the vial should not be used. The problem is all the more significant when the vials contain liquids with long expiration dates, allowing many more opportunities for degradation of said marking

[0030] This invention relates to a marking process that makes it possible to remedy the problems raised by the products of the prior art and ensures a reading of the marked data as well as the necessary permanence.

[0031] The invention is now described in detail according to a particular, nonlimiting embodiment, relative to the explanatory drawings in which the different figures show:

[0032] FIG. 1: A perspective view of a set of vials according to the invention,

[0033] FIG. 2A: A perspective view of a vial according to this invention, after marking and before affixing a label, on the marking side,

[0034] FIG. 2B: A perspective view of a vial according to this invention, after marking, before affixing a label, on the side opposite to the marking,

[0035] FIG. 3A: A perspective view of a vial according to this invention, after marking and before affixing a label, on the marking side,

[0036] FIG. 3B: A perspective view of a vial according to this invention, after marking, after affixing a label, on the side opposite to the marking

[0037] In FIG. 1, vials 10 are shown according to this invention, generally produced by blow-molding extrusion, filling in a stream and sealing afterward, in a sterile environment when the product requires it. With the process and the device being known, the description is not further illustrated. The vials are generally presented in a strip, as in FIG. 1 comprising several vials.

[0038] As shown in FIGS. 2A, 2B, 3A and 3B, each vial comprises a foot 12, a body 14, and a head 16.

[0039] The foot **12** forms a tab and generally results from a hot-plating of the walls of the container in such a way as to produce a surface, in this case a flat one, rectangular, with a thickness that is equal essentially to double the thickness of the wall of the container or a smaller thickness based on the initial volume that is used and the surface that is created from this volume.

[0040] These vials **10** are connected to form a strip **18**; in this case, they are connected by their sides, by connecting means **20**.

[0041] These connecting means **20** are suitable for making the connection detachable, by breaking the connection facing the connecting means, thus making it possible to sample one of the end vials, with the others remaining connected.

[0042] The body **14**, of small volume, is hollow for receiving the product **22**, in the form of liquid, gel or solution, for example.

[0043] The volume is preferably adapted to the general shape of the container, and it is noted that the geometry of the body is a bit flattened, in the embodiment shown.

[0044] The head **16** is factory-mounted after filling and results from a deformation under hot conditions of the upper part of the container.

[0045] This head **16** comprises a neck **24**, a cap **26**, and a weakening point **28** between the two for ensuring an easy withdrawal of said head and for accessing the product. This weakening point **28** is broken, often by rotation of the cap **26** relative to the neck **24**. The neck is then open facing the weakening point and allows the product to flow by inverting the vial and in general by pressure on the body because the liquid can be retained by capillary action in said body because of the small volume and the small diameter of the outlet opening.

[0046] During this operation, the vial **10** is held by the user by its foot **12**. On this foot **12**, as shown in FIG. 2A, a marking **30** of the type corresponding to the expiration date, the manufacturing date, and the lot number is ensured.

[0047] This marking is done on the front surface, for example, by a print head with an inkjet, of the commercial type, with the ink preferably being an ink of aqueous medium.

[0048] The marking is therefore ensured in a stream on the palette consisting of the foot of the vial.

[0049] It is noted that the marking that is done on the front surface is a mirror-image marking, i.e., with characters as they would be presented in mirror image of normal writing.

[0050] It is noted that the material that is used is generally polypropylene or polyethylene, which both have the property of being transparent or at least translucent.

[0051] On this front surface, the user would have trouble reading the marking or at least immediately determining the content of the data found therein.

[0052] In contrast, in FIG. 2B, it is noted that the reverse of the tab that consists of the foot **12** makes the marking appear in transparency and is directly readable, writing on the spot, making it possible to grasp the data immediately.

[0053] FIG. 3A shows the vial **10** with its marking **30**, but the front surface has received a label **32** that masks the marking and covers it, thus ensuring its protection against mechanical damage or moisture or contact with liquids such as water, and exposures to UV radiation that can degrade the marking ink.

[0054] These labels are generally also made of polymer materials such as polyethylene, although these labels are very strong mechanically and resistant to moisture, and the adhe-

sive that makes possible the adhesion to the foot of the vial is very strong. These labels are therefore preferably made of a material that comprises a polymer with a high degree of adhesiveness.

[0055] One of the advantages derived from this invention relative to possible counterfeiting is also noted because if a third party withdrew the label from the foot for the purpose of repackaging or falsification of the printed data, the marking would be heavily damaged by the removal of said label.

[0056] The label also has an advantage of reinforcing the readability.

[0057] Actually, the bottom of the labels is generally opaque, white, although the marking **30**, generally black, is all the more readable.

[0058] The label bears notes that are also useful, but the marking is done with a printing machine with suitable inks and possible polymerization by heat or by UV, which makes this printing very resistant both to wear and in general to any degradation by moisture or by friction.

[0059] Also, the content of the writing on the labels does not pose the same problem as that of the marking on the vial, and the degradation is not a problem, at least under the conditions of normal use of these products that are generally pharmaceutical or cosmetic.

[0060] With the process for marking a vial comprising a foot **12**, a body **14**, and a head **16**, said foot that is in the form of a tab with two surfaces, one of these surfaces receiving a label **32**, is characterized in that a marking **30** is affixed to the surface of the foot **12** receiving the label, prior to the affixing of said label, and in that the label is affixed to said surface, by covering said marking, once the latter is done.

[0061] Said writing in the process according to the invention consists more particularly in affixing in mirror image the marking on the surface that bears the label.

1. Process for marking a vial made of transparent or at least translucent material, in particular with a pharmaceutical and/or cosmetic guide, comprising a foot (**12**), a body (**14**), and a head (**16**), said foot in the form of a tab with two surfaces, one of these surfaces receiving a label (**32**), characterized in that a marking (**30**) is affixed to the surface of the foot (**12**) receiving the label, prior to the affixing of said label, and in that the label is affixed to said surface, by covering said marking, once the former is done.

2. Process for marking a vial according to claim 1, wherein the marking (**30**) is made in mirror image.

3. Process for marking a vial according to claim 1, wherein the marking (**30**) is done by ink printing.

4. Process for marking a vial according to claim 1, wherein the label is made of a material that comprises a polymer with a high degree of adhesiveness.

5. Vial made of transparent or translucent polymer material comprising a foot (**12**), a body (**14**), and a head (**16**), said foot in the form of a tab with two surfaces, with one of these surfaces receiving a label (**32**), wherein on one of the surfaces of the foot (**12**) in the form of a tab, it comprises a mirror-image marking (**30**) on which said label is superposed, with said marking being readable on the spot only by transparency on the surface opposite to the one receiving the label.

6. Vial made of transparent or translucent polymer material according to claim 5, wherein the volume is between 0.1 and 5 milliliters.

7. Process for marking a vial according to claim 2, wherein the marking (**30**) is done by ink printing.

8. Process for marking a vial according to claim 2, wherein the label is made of a material that comprises a polymer with a high degree of adhesiveness.

9. Process for marking a vial according to claim 3, wherein the label is made of a material that comprises a polymer with a high degree of adhesiveness.

* * * * *