The vessel consists of an outside container (1) with the neck (2) and the cap (3) for closing the container (1) neck (2) and enclosure (5). The cap (4) has circular hole (4) on the front side, to its inner perimeter is attached the enclosure (5). The push fit and/or running fit controller (6) for enclosure (5) drainage into the container (1) is placed in longitudinal axis of the enclosure (5) provided with elements for sealing the hole (4) and for blocking controller (6) position against the cap (3). The controller (6) is equipped with a head (61) closing hole (4) and it is coupled with the cap (3) by bayonet cap, by thread, or by bellows. The enclosure (5) can have shape of hollow cylinder with draining hole (51) made in the enclosure (5) wall (52), or in the bottom (53). The body (62) of the controller (6) is formed by cylindrical sleeve (64) with longitudinal hole or by hollow cylinder, by plug or by screw.
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For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.
The vessel for separately stored components mixed before opening

Field of the invention
The present invention relates to a vessel for separately stored components mixed before opening.

Background of the invention
Conventional vessels serve for storing of liquids. They are usually different solutions of solid or liquid components dissolved in other liquids, e.g. in water. These solutions are often unstable, and therefore it is convenient to mix the single components closely before their use.
Czech invention application PV 1995-1701 titled “Container for two separately stored components mixed within opening” describes such a container, where enclosure is located in the vessel, its upper part impinge into the vessel thread neck. Vessel thread cap can be screwed without contemporary turning and opening enclosure cap, but within unscrewing the vessel thread cap, the cap simultaneously opens for the second component, but this is not the advantage.
WO 02/066333 describes vessel for two components, one of them can be solid, and the second can be liquid. The vessel has one cap. Both, the neck and the vessel are separated, and both components are mixed out of the vessel. Containers according WO 02/22467 A and WO 03/020601 A2 are solved similarly.
All described vessels mix components out of the vessel.

Summary of the invention
The vessel for separately stored components mixed before opening consisting of the outer container for accommodation of the first component, whereas this container has neck and cap for closing of the container neck, and the enclosure for storing further component impinging into the space limited by the cap according to the invention, and consist in that, the cap has circular hole in the front part, to its internal perimeter is fitted the enclosure for placement at least one other component, in the enclosure is inserted push fit
and/or running fit controller for the enclosure drainage into the container, equipped with elements for sealing the hole and blocking position of the controller against the cap.

The controller is equipped with a head closing the hole, that is joined with the cap by bayonet cap through the thread from bellow or it is joined with the cap hole on its perimeter by the bellows.

The controller is equipped with at least one stopper of the controller position for enclosure closing and opening for blocking of the controller position against the cap.

The enclosure is equipped with removable bottom formed by foil, stopcock, or it forms one moulded piece with enclosure, and the bottom is reduced on perimeter of the enclosure wall.

The enclosure has advantageously shape of hollow cylinder with draining hole for made in the enclosure wall for draining at least one further component into the container; the controller consists of a head and running fit body placed inside of the enclosure; the body is formed by cylindrical sleeve with longitudinal hole, the compact part of the controller body is in position of closed enclosure positioned against the enclosure hole, and it closes it, and body enclosure is at least partly out of the hole in position of the opened enclosure.

Internal body sleeve space can be separated longitudinally by at least one barrier.

The controller can be formed by a head in the form of plug tightly joined with the body passing through the enclosure to the enclosure bottom.

Controller body can be provided with a disc forming enclosure bottom in the lower part.

The controller is advantageously formed by a head, and with the body in form of helix passing through the enclosure, there are screwed at least two plungers on the body horizontally separating the enclosure into compartments, whereas the enclosure is provided with longitudinal projection positioned on inner enclosure wall, and plungers are provided with a cut out, into which fits the projection.
3

The controller can be formed by a head tightly coupled with the body in form of helix passing through the enclosure up to the enclosure bottom; in lower part of body helix (62) there is reverse thread fitting into thread hole made in the centre of the bottom, on the body inside of the enclosure is screwed the plunger provided with cut out, into which fits longitudinal projection made on inner enclosure wall.

Vessel according to invention is suitable for manufacturing of mixed drinks that cannot be pre-mixed because of durability of the final drink or their subsequent reactions. The enclosure can be placed e.g. syrup, tea or other essences, sugar, lemon juice, alcohol, etc.

Vessel according to invention can be used in pharmaceutical industry for distribution of two and more components with reduced stability after mixing. Vessel according to invention can be used further in chemical industry for packing of chemist’s article or for sale of petrol for two-stroke engine using mixture of oil and petrol.

Description of figures

Figure 1 illustrates cross-section of vessel with the thread cap and enclosure.
Figure 2a illustrates cross-section of controller.

Figure 2b illustrates assembly of the enclosure with controller.
Figure 3 illustrates top view of the enclosure with controller.
Figure 4 illustrates cross-section of vessel with thread cap and enclosure, where the controller is coupled with the thread cap by bellows.
Figure 5 illustrates cross-section of vessel with a thread cap and enclosure and push fit controller.
Figure 6 illustrates cross-section of vessel with thread cap and enclosure. The enclosure and the bottom forms one-piece mould, the controller body is formed by hollow cylinder.
Figure 7 illustrates cross-section of vessel with thread cap and enclosure. The controller body end is realised by disc.
Figure 8 illustrates cross-section of vessel with thread cap and enclosure.
Figure 9 illustrates cross-section of vessel with thread cap and enclosure. The controller head is coupled with thread cap by screwing. The controller body has shape of a plug.

Figure 10a illustrates cross-section of vessel with thread cap and enclosure. The controller body has shape of a screw.

Figure 10a illustrates top view of the enclosure with controller. Figure 11a illustrates cross-section of vessel with thread cap and enclosure. The controller body has shape of screw. Plungers are screwed on the body of controller dividing the enclosure into compartments.

Figure 11b illustrates top view of the enclosure with controller.

Examples

Example 1

The vessel for two separately stored components mixed before opening is illustrated in Figure 1. It consists of outer container 1 for placing first component, e.g. water. This container 1 has threaded neck 2, on it is applied thread cap 3 for closing the container 1 neck 2. The cap 3 has circular hole 4 in the facing, to its inner perimeter is fastened enclosure 5 for placing at least one further component, e.g. syrup. The running fit controller 6 for drainage the enclosure 5 is inserted in the enclosure 5 in longitudinal position. The enclosure 5 is cylindrical vessel equipped with elongate draining hole 51 in the wall 52 for draining second component into container 1. Figure 2 illustrates controller 6 created by head 61 tightly joined with body 62 placed by running fit way inside the enclosure 5. The body 62 is cylindrical sleeve 64 with elongate hole. Compact part of cylindrical body 62 sleeve 64 is in position of closed enclosure 5 placed against hole 51 and closes it, in position of opened enclosure 5 it is at least partly out of the hole 51. Controller 6 head 61 is joined by bayonet cap with the cap 3.

The container 1 is realised by conventional polyethylene bottle. Both enclosure 5 and controller 6 are also made of polyethylene. The controller is 6 turned by turning the head 61 in the cap 3 so, that controller 6 of inner
compact cylindrical sleeve 64 is against enclosure 5 draining hole 51. The enclosure 5 is in closed position.

It is filled with second component in the bottom–up 53 position and sealed over with foil creating enclosure 5 bottom 53. The enclosure 5 is inserted into container 1 and closed by the cap 3. In that case, when bottom 53 forms one unit with the enclosure 5 and it is not removable, this can be filed by syringe.

By rotation the head 61 in the cap 3 turns inner compact part of cylindrical body 62 sleeve 64 out of the enclosure 5 draining hole 51 and the second component spills into container 1. The solution in container 1 is shaken up and drink is ready for use after opening the threaded cap 3.

Example 2

Vessel is similar as in example 1, but the enclosure 5 is split by longitudinal barrier 65 shown in Figure 3. The head 61 is joined with the cap 3 by thread.

One component is spilled from the enclosure 5 into container 1 by turning the head 61 for one quarter of the circle, and the second one is spilled by turning for further quarter. The solution in container 1 is shaken up and drink is ready for use after opening the threaded cap 3.

Example 3

Other example of vessel is illustrated in Figure 4. It consists of outer container 1 for placing the first component. This container 1 has threaded neck 2 on it is applied cap thread 3 for closing the container 1 neck 2. The cap has circular hole 4 in the face, the enclosure 5 for placing further component is fastened to its inner perimeter. In the enclosure 5 is placed in its longitudinal axis controller 6 for drainage the enclosure 5 into container 1. Elements for sealing the hole 4 and for blocking the controller 6 position against the cap 3 are formed jointly by bellows (elastic coupling).

The controller 6 has shape of plug 63 passing through the enclosure 5 to the enclosure 5 bottom 53. The enclosure 5 bottom 53 is realised by stopcock. The controller 6 is joined by bellows with the cap 3 hole 4. The plug 63 brakes the bottom 53 by pressing the controller 6 and the content of the enclosure 5 drains into container 1.
Solution in the container 1 is shaken up and drink is ready for use after opening the cap 3.

Example 4

Further configuration of the vessel is illustrated in Figure 5. It consists of outer container 1 for placing the first component. This container 1 has threaded neck 2 on it is applied cap 3 thread for closing the container 1 neck 2. The cap 3 has circular hole 4 in the top face to its inner perimeter is fastened the enclosure 5 for placing further component. In the enclosure 5 is in its longitudinal axis placed push fitting controller 6.

The controller 6 is created by the head 61 sealing the hole 4. The body 62 has shape of plug 63 passing through enclosure 5 up to the enclosure 5 bottom 53.

The cap 3 hole 4 is provided with upper projection 55 and on the inner enclosure sleeve 5 the lower projection 56 is formed. The controller 6 head 61 is provided with stopper 67 for touch-down on the upper projection 55.

The enclosure 5 is filled through bottom 53 that is after filling sealed by foil or it is closed by stopcock. The body 62 of the shape of the plug 63 crushes bottom 53 by pressing the controller 6 and the content of the enclosure 5 is drained into container 1.

Solution in the container 1 is shaken up and drink is ready for use after opening the cap 3.

Example 5

The container 1 is created by the same way as in previous examples. The cap 3 and the enclosure 5 and controller 6 are shown in Figure 6.

The bottom 53 if formed as one moulded piece with the enclosure 5 and the wall is reduced on enclosure 5 sleeve 52 perimeter. The controller 6 is created by the head 61 and the body 62. The controller 6 head 61 is coupled with the cap 3 by thread on its perimeter. The body 62 is created by hollow cylinder. By turning the controller 6 head 61 the cylindrical body 62 breaks bottom 53 around enclosure 5 perimeter and the content is drained into container 1.
Solution in the container 1 is shaken up and drink is ready for use after opening the cap 3.

Example 6

Figure 7 illustrates container 1 and cap 3 with enclosure 5 and controller 6. The controller 6 body 62 is in lower part provided with disc 66 forming enclosure 5 bottom 53. The controller 6 head 61 is coupled with the cap 3 by screwed-joint and the disc 66 is coupled with enclosure 5 sleeve 52 by bayonet cap.

By turning the controller 6 head 61 the bottom 53 created by disc 66 is removed from the enclosure 5 sleeve 52 and the enclosure 5 content is drained into container 1.
Solution in the container 1 is shaken up and drink is ready for use after opening the cap 3.

Example 7

Figure 8 illustrates container 1 and cap 3 with enclosure 5 and controller 6. The controller 6 body 62 is provided with disc 66 in lower part creating enclosure 5 bottom 53. The controller 6 head 61 is coupled with the cap 3 by bayonet cap and disc 66 is also coupled with enclosure 5 sleeve 52 by bayonet cap. The bottom 53 created by disc 66 is by turning and pressing the controller 6 head 61 removed from enclosure 5 sleeve 52 and the enclosure 5 content is drained into container 1.
Solution in the container 1 is shaken up and drink is ready for use after opening the cap 3.

Example 8

Further vessel configuration is illustrated in Figure 9. It consists of outer container 1 for placing first component, e.g. water. This container 1 has threaded neck 2 and threaded cap 3 for closing container 1 neck 2. The cap 3, illustrated in Figure 9 has circular hole 4 in front part, to its internal perimeter is joined the enclosure 5 for placing at least one further component. In longitudinal axis of the enclosure 5 is placed running fit controller 6.
The controller 6 is formed by head 61 coupled with body 62 shaped as a plug passing through enclosure 5 up to the enclosure 5 bottom 53. The cap 3 hole 4 is provided with upper projection 55. The controller 6 head 61 is coupled with the cap 3 by screwing joint.

The enclosure 5 is filled through bottom 53 sealed by foil after filling, or it is closed by stopcock.

By turning controller 6 the cylindrical plug 63 breaks bottom 53 and the content of the enclosure 5 is drained into container 1.

Solution in the container 1 is shaken up and drink is ready for use after opening the cap 3.

Example 9

Further vessel configuration is illustrated in Figure 10a. It consists of outer container 1 for placing first component, e.g. water. This container 1 has threaded neck 2 and threaded cap 3. The cap 3, illustrated in Figure 10a has circular hole 4 in front part, to its internal perimeter is joined the enclosure 5. In longitudinal axis of the enclosure 5 is placed running fit controller 6.

The controller 6 is formed by head 61 and by body 62 shaped as a screw passing through enclosure 5 up to the enclosure 5 bottom 53 and it is provided with threaded hole 59. In lower part of the body 62 is reverse thread 67, and the bottom 53 is provided with threaded hole 59, on the body 62 is screwed plunger 68 inside of the enclosure 5 provided with cut out 69, into which fits the projection 57.

The cap 3 hole 4 is provided with upper projection 55. The controller 6 head 61 is coupled with the cap 3 by bayonet cap and is provided with stopper 67.

The enclosure 5 is filled through threaded hole 54 in the bottom 53 closed after filling by body 62 with counter thread.

On the body 62 is screwed plunger 68. Figure 10b is illustrating top view of enclosure 5. The plunger 68 is provided with blocking cut out 69 fitted into projection 57 passing along the enclosure 5 wall.

The thread hole 54 is opening the controller 6 by turning and the plunger 68 ejects content of the enclosure 5 into container 1 by shifting down.
Solution in the container 1 is shaken up and drink is ready for use after opening the cap 3. Thread hole 54 is closed by reverse turning the controller 6 and container 1 is opened.

Example 10
Further vessel configuration is illustrated in Figure 11a. It consists of outer container 1 for placing first component. This container 1 has threaded neck 2 and threaded cap 3 for closing of container 1 neck 2. The cap 3, illustrated in Figure 11a has circular hole 4 in front part, to its internal perimeter is joined the enclosure 5 for placing further component. In longitudinal axis of the enclosure 5 is placed running fit controller 6.
The controller 6 is formed by head 61 and body 62 shaped as a screw passing through enclosure 5.
The cap 3 hole 4 is provided with upper projection 55. The controller 6 head 61 is coupled with the cap 3 by bayonet cap and is provided with stopper 67.
Eight plungers 68 is screwed on the body 62 horizontally separating the enclosure 5 into compartments 58, whereas the enclosure 5 is provided with longitudinal projection 57 placed longitudinally on inner enclosure 5 wall 52 and plungers 68 are provided with cut out 69 into which fits longitudinal projection 57.
Figure 11b illustrates top view of the enclosure 5. By turning the controller 6 the plungers 68 are stepwise ejected and content of particular enclosure 5 compartment 58 flows out into container 1.
Solution in the container 1 is shaken up and drink is ready for use.

Industrial utilisation
Vessel according invention is utilisable in food, pharmaceutical and chemical industries.
Claims

1. A vessel for separately stored components mixed before opening consists of an outside container (1) for placing the first component, whereas this container (1) has neck (2) and cap (3) for closing the neck (2) of container (1) and enclosure (5) for storing further component impinging into space limited by cap (3), wherein the cap (3) has circular hole (4) in the front, to its inner perimeter is fixed enclosure (5) for placing at least one further component, in the enclosure (5) is in its longitudinal axis inserted push fit and/or running fit controller (6) for the enclosure (5) drainage into the container (1), provided with elements for sealing the hole (4) and blocking the controller (6) position against the cap (3).

2. A vessel according to the claim 1, wherein controller (6) is provided with head (61) closing the hole (4) joined from below or on its perimeter with the cap (3) by bayonet cap.

3. A vessel according to the claim 1, wherein controller (6) is provided with head (61) closing the hole (4) joined from below or on its perimeter with the cap (3) by thread.

4. A vessel according to the claim 1, wherein controller (6) is joined with the cap (3) hole (4) by bellows.

5. A vessel according to the claim 1 to 3, wherein for controller (6) blocking position against cap (3) the controller (6) is provided with at least one stopper (67) of controller position for enclosure (5) closing and opening.

6. A vessel according to the claim 1 to 5, wherein the enclosure (5) is provided with removable bottom (53) formed by foil, stopcock or it forms one moulded piece with the enclosure (5) and the bottom (53) is reduced around the enclosure (5) wall (52) perimeter.

7. A vessel according to the claim 1 to 3, 5 and 6, wherein the enclosure (5) has shape of hollow cylinder with draining hole (51) made in the enclosure (5) wall (52) for draining at least one further component into container (1), the controller (6) consists of head (61) and running fit body (62) placed inside the enclosure (5), the body (62) is formed by cylindrical sleeve (64) with longitudinal hole, in position of the closed enclosure (5) is compact...
part body (62) controller (6) sleeve (64) placed against the enclosure (5) hole (51) and closes it, in position of opened enclosure (5) the body (62) sleeve (64) is at least partially out of the hole (51).

8. A vessel according to the claim 7, wherein internal space of the body (62) sleeve (64) is longitudinally separated by at least one barrier (65).

9. A vessel according to the claim 1 to 6, wherein the controller (6) is formed by head (61) tightly joined with body (62) of the shape of plug passing through enclosure (5) up to the enclosure (5) bottom (53).

10. A vessel according to the claim 9, wherein the controller (6) body (62) is provided with disc (66) in the lower part constituting enclosure (5) bottom (53).

11. A vessel according to the claim 1 to 3, 5 and 6, wherein the controller (6) is formed by head (61) joined tightly with the body (62) of the shape of helix, passing through enclosure (5), at least two plungers (68) horizontally separating enclosure (5) into compartments (58) are screwed on the body (62), whereas the enclosure (5) is provided with longitudinal projection (57) placed on inner enclosure (5) wall (52) and plungers (68) are provided with cut out (69), into which the projection (57) fits.

12. A vessel according to the claim 1 to 3, 5 and 6, wherein the controller (6) is formed by head (61) joined tightly with the body (62) of shape of helix, passing through enclosure (5) up to enclosure (5) bottom (53), counter thread (67) is in lower part body (62) helix fitting into thread hole (54) formed in the centre of the bottom (53), inside enclosure (5) is on the body (62) screwed plunger (68) provided with cut out (69), into which fits longitudinal projection (57) formed on enclosure (5) inner wall (52).
A. CLASSIFICATION OF SUBJECT MATTER

IPC 7 B65D81/32

A. CLASSIFICATION OF SUBJECT MATTER

According to International Patent Classification (IPC) or to both national classification and IPC.

B. FIELDS SEARCHED

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