

CLAIMS

1. A pre-packaged liquid container (400) usable in a device (1000) for the administration of a liquid, the container comprising:

- a container upper portion (410) with a container upper wall extending from a first container upper portion base to a second container upper portion base, the container upper portion (410) being configured to contain a basic liquid, and wherein:
 - said container upper wall comprises, close to said second container upper portion base, a container upper portion thread (412);
 - said second container upper portion base comprises a mechanically breakable container upper portion membrane (416);
- a container lower portion (430) with a container lower wall extending from a first container lower portion base to a second container lower portion base, the container lower portion (430) being configured to contain a powder soluble in said basic liquid, and wherein:
 - said container lower wall comprises, close to said first container lower portion base, a container lower portion thread (433);
 - said first container lower portion base comprises a mechanically breakable container lower portion membrane (436);
- coupling and closing means (420) of said container upper (410) and lower (430) portions positioned, in

use, with said container upper portion membrane (416) facing said container lower portion membrane (436), the coupling and closing means (420) comprising:

- a first thread (422) configured to engage with said container upper portion thread (412);
- a second thread (423) configured to engage with said container lower portion thread (433);
- breaking means (426, 426A, 426B) configured to break said container lower portion membrane (436) and said container upper portion membrane (416) upon screwing, in use, said first (422) and second (423) threads on said container upper (412) and lower (433) portion threads;

and wherein said container upper portion (410) and/or said container lower portion (430) comprise one or more container fluidic connection means (401, 402) connectable with fluidic connection means (160,161) of said device (1000);

the container being characterized in that:

- there is a system of safety tabs, comprising at least two first pairs of safety tabs (424,425) fastened on said coupling and closing means (420) and at least two second pairs of safety tabs (414,435) fastened on said container upper (410) and lower (430) portions at heights corresponding to those of the first two pairs of safety tabs,
- one of the two tabs in each of said two first pairs of safety tabs is inserted between the two corresponding tabs of said two second pairs of

safety tabs, or vice versa, so that all the tabs are substantially parallel,

- the at least two first pairs and two second pairs of safety tabs (424,425; 414,435) are configured to exert a resistance against a removal, in an axial screwing direction, of said container upper (410) and/or lower (430) portions by said coupling and closing means (420) before said screwing.

2. A container (400) according to claim 1, wherein said breaking means comprise a circular series of upper teeth (426A) configured to break said container upper portion membrane (416) and a circular series of lower teeth (426B) configured to break said container lower portion membrane (436).

3. A container (400) according to claim 1 or 2, in which the at least two first pairs of safety tabs (424,425) and the at least two second pairs of safety tabs (414,435) run for at least one arc of circumference around an axis of said first and second threads or of said container upper or lower portion threads.

4. A container (400) according to claim 1 or 2, wherein the at least two first pairs of safety tabs (424,425) and the at least two second pairs of safety tabs (414,435) are each oriented along a direction which forms an acute turning angle with the corresponding screwing direction of said container upper portion

thread (412) and said container lower portion thread (433).

5. A device (1000) for the administration of a liquid, comprising a device lower portion (200) and a device upper portion (100) as well as removable locking means (300) configured to pass, in use, from a mechanical locking position to a mechanical release position or vice versa between said device lower portion (200) and said device upper portion (100), wherein:

- the device lower portion (200) comprises a casing (210) which receives a pre-packaged liquid container (400);
- the device upper portion (100) comprises:
 - fluidic connection means (160) configured to fluidically connect, in said mechanical locking position, the device upper portion (100) to said pre-packaged container (400) inside said casing (210);
 - heating means (173,174) for heating said liquid, fluidically connected to said fluidic connection means (160) and configured to obtain a heated liquid;
 - means for the administration (110) of said heated liquid;

and wherein the heating means (173, 174) are induction heating means, the device being characterized in that the pre-packaged liquid container (400) is the container of one or more of claims 1 to 4.

6. A device according to claim 5, wherein said induction means (173,174) comprise a metal cylinder (173) including a plurality of through ducts (173A) configured for the passage of said liquid, the metal cylinder (173) being surrounded by an induction winding (174).

7. A device according to claim 6, wherein heat dissipation means (171) are provided, which are coaxial and external to said metal cylinder.

8. A device according to claim 6 or 7, wherein a first temperature sensor is comprised which is positioned inside the fluidic connection means (160) upstream of said metal cylinder (173) and a second temperature sensor is comprised which is positioned downstream of said metal cylinder (173) along the flow direction of the liquid, in use, and wherein in said upper portion (100) an electronic temperature control unit (180) is comprised, which is configured to activate the induction heating means (173,174) based on the data detected by said first and by said second temperature sensor and optionally further based on a pre-set temperature.

9. A device according to claim 8, wherein said temperature control unit is configured to activate the induction heating means (173,174) based on data detected by an accelerometer provided in said device (1000).

10. A device according to one or more of claims 5 to

9, wherein the fluidic connection means (160) comprise one or more sharp spouts (161) for perforating said one or more container fluidic connection means (401, 402) in the form of one or more perforable regions.

11. A device (100; 200) according to claim 10, wherein said removable locking means (300) are configured to tighten, in use, said pre-packaged liquid container (400) against said one or more sharp spouts (161) up to the perforation of said one or more perforable regions (401, 402).

12. A device according to one or more of claims 5 to 11, wherein the casing (210) comprises an end opening configured to receive the pre-packaged liquid container (400) and to connect to said device upper portion (100) through said removable locking means (300).

13. A method for the administration of a liquid, characterized in that it comprises the following steps:

- A. providing a liquid administration device (1000) according to one or more of claims 5 to 12, comprising liquid heating means (173,174);
- B. providing a pre-packaged liquid container (400) according to one or more of claims 1 to 4;
- C. operating the coupling and closing means (420) of said pre-packaged liquid container (400) up to the perforation of said container upper (416) and lower (436) membranes;

- D. inserting said pre-packaged liquid container (400) into said liquid administration device lower portion (200) so that said container fluidic connection means (401, 402) face said device upper portion (100);
- E. coupling said upper portion (100) to said lower portion (200) of said liquid administration device (1000), through said removable locking means (300) so as to fluidically connect said pre-packaged liquid container (400) to said device upper portion (100);
- F. activating said liquid heating means (173,174); and
- G. administering said liquid through said administration means (110).