A liquid container comprises a container body and a pipe integrally formed with the container body. The container body encloses a liquid product. A sidewall substantially separates an interior volume of the pipe from an interior volume of the container body, wherein the interior volume of the pipe is less than the interior volume of the container body. The interior volume of the pipe further communicates with the interior volume of the container body through at least an internal opening proximate to a bottom of the container body. The enclosed liquid product thus can flow out from the container body through the pipe serving as an in-situ straw incorporated in the liquid container.
IN-SITU STRAW CONTAINER

BACKGROUND OF THE INVENTION

[0001] 1. Field of the Invention

[0002] The present invention relates to a liquid container. More particularly, the present invention provides a liquid container that conveniently integrates an in-situ straw.

[0003] 2. Description of the Related Art

[0004] Drink products are sold commercially in various packaging containers. Those packaging containers for liquid products are generally made of plastics, paper material, glass, or metal such as aluminum cans. Among those different kinds of packaging containers that are present in the market, plastic containers more particularly have the advantages of being cheap, light, and easily fashionable because they are fabricated by molding.

[0005] In the category of ready-to-drink products, liquid containers are usually smaller and enclose less product so that the consumer can consume and finish the drink directly from the packaging container. The liquid container is usually provided with an external opening covered with a cap and/or sealed by a covering after the liquid product is enclosed therein. To drink the liquid product, the external opening is exposed by removing the cap and/or piercing the covering. The consumer then may drink either directly from the exposed external opening of the liquid container or via a straw introduced through the opening.

[0006] With the traditional liquid container, drinking directly from the opening in the packaging container without a straw may inconveniently cause leakage and partial loss of the drink. Moreover, when the consumer, for example, is driving a car while drinking the liquid product enclosed in the liquid container without any straw, he or she must lean the head backwards for the drink to flow out, which may be dangerous and cause a car accident. However, when a straw is used, it may happen that the size of the straw is not adequate to the size of the liquid container. The straw then may drop into the liquid container, or the liquid product may not be entirely drunk through the straw because the straw is too short when the level of the liquid product in the container is substantially low.

[0007] When a liquid product enclosed in a container of greater volume capacity such as a 2000 ml-capacity bottle is poured, for example, into a glass, the container must be carefully inclined such that the liquid product can flow out without an excessive flow rate. Otherwise, the glass into which the liquid product is poured may tumble under the flow force.

[0008] Therefore, a liquid container that can overcome at least the above inconveniences is desired.

SUMMARY OF THE INVENTION

[0009] An aspect of the present invention therefore is to provide an in-situ straw container for liquid product that overcomes the above problems by incorporating a straw member therein.

[0010] To attain at least the foregoing objectives, the in-situ straw container of the present invention principally comprises a container body and a pipe integrated and attached to the container body. The container body is the part of the in-situ straw container that encloses the liquid product. An interior volume of the pipe is substantially separated from an interior volume of the container body by a sidewall. The interior volume of the pipe communicates with the interior volume of the container body via at least an internal opening located proximate to a bottom of the container body. The liquid product within the container body can thereby flow out by suction through the pipe.

[0011] The pipe of the in-situ straw container of the present invention may be constructed according to various arrangements. In one arrangement, the pipe may protrude over the container body so that the consumer can drink the liquid product directly from the pipe serving as a straw member.

[0012] In another arrangement, the consumer can drink the enclosed liquid product via punching through an external opening of the pipe by means of a straw head. The size of the straw head can be substantially reduced because the pipe incorporated in the in-situ straw container already provides the principal and adequate straw length.

[0013] Still in another arrangement, the pipe may protrude over the container body and terminate into a manually removable cover member that externally closes the pipe. To drink the enclosed liquid product, the cover member is manually removed, the liquid product then can be drunk through the pipe serving as a straw. The cover member can be re-disposed upside down over the opened pipe to cover the pipe.

[0014] Still in another arrangement, the in-situ straw container further may incorporate a second external opening. When drinking the enclosed liquid product, the first and second external openings are externally exposed. The liquid product then can be drank by suction through the first external opening while the second external opening allows exterior air to enter the in-situ straw container, thereby preventing contraction of the container body due to external pressure.

[0015] In accordance with the above-mentioned and other objectives, the present invention further provides a liquid container that comprises a container body, a first pipe, and a second pipe, both first and second pipes are integrated and attached to the container body. The container body encloses a liquid product therein. The first pipe includes a first external opening through which the liquid product within the container body can flow out by suction, and the second pipe includes a second external opening through which exterior air penetrates the liquid container as the enclosed liquid product is sucked out. A sidewall substantially separates an interior volume of the first pipe from an interior volume of the container body. At least an internal opening is formed proximate to a bottom of the container body to allow the liquid product within the container body to flow out through the first pipe via suction. The interior volume of the second pipe substantially communicates with the interior volume of the container body except a top portion between the container body and the second pipe where a top sidewall is located. The container body may further incorporate a third external opening, substantially larger than the first and second external openings, through which the enclosed liquid product can be poured out by inclination of the liquid container.
[0016] The above-described liquid container may be used in various ways. In one example of utilization, the first pipe may serve as a straw through which the liquid product flows out by suction through the first external opening of the first pipe.

[0017] In another example of utilization, the liquid product is poured out through either the third external opening of the container body or the second external opening of the second pipe by simply inclining the liquid container. Pouring out the enclosed liquid product through the second external opening of the second pipe is performed with a flow rate that is substantially less than the flow rate through the third external opening of the container body. As a result, excessive output of the liquid product is prevented.

[0018] It is to be understood that both the foregoing general description and the following detailed description are exemplary, and are intended to provide further explanation of the invention as claimed.

BRIEF DESCRIPTION OF THE DRAWINGS

[0019] The accompanying drawings are included to provide a further understanding of the invention, and are incorporated in and constitute a part of this specification. The drawings illustrate embodiments of the invention and, together with the description, serve to explain the principles of the invention. In the drawings,

[0020] FIG. 1 and FIG. 2 are respectively perspective and cross-sectional views illustrating an in-situ straw container according to a first embodiment of the present invention;

[0021] FIG. 3 and FIG. 4 are respectively perspective and cross-sectional views illustrating an in-situ straw container according to a second embodiment of the invention;

[0022] FIG. 5, FIG. 6, and FIG. 7 are various views illustrating an in-situ straw container according to a third embodiment of the present invention;

[0023] FIG. 8 is a perspective view illustrating a variant example of an in-situ straw container according to the third embodiment of the present invention;

[0024] FIG. 9 and FIG. 10 are respectively a perspective view and a cross-sectional view illustrating an in-situ straw container according to a fourth embodiment of the present invention; and

[0025] FIG. 11 is a perspective view schematically illustrating a variant example of the in-situ straw container of the invention.

DESCRIPTION OF THE PREFERRED EMBODIMENTS

[0026] The features and advantages of the present invention will be more clearly understood from the following detailed description taken in conjunction with the accompanying drawings. The following detailed description is only illustrative of various specific structures that embody the present invention, and does not limit the scope of the invention. Wherever possible, like reference numerals refer to like elements or parts unless otherwise indicated.

[0027] Referring to FIG. 1 and FIG. 2, a perspective view and a cross-sectional view taken along cross-section I of FIG. 1 schematically illustrate an in-situ straw container according to a first embodiment of the present invention. As illustrated in FIG. 1 and FIG. 2, the in-situ straw container of the invention comprises a container body 10 and a pipe 14 integrated to the container body 10. The pipe 14 is substantially prolonged to the bottom of the container body 10, and protrudes over the top 18 of the container body 10. The container body 10 may enclose, for example, a liquid product. The term "liquid product" broadly refers to any product that can flow. As shown in FIG. 2, the interior volume of the pipe 14 is substantially separated from the interior volume of the container body 10 by a sidewalk 30. Nevertheless, the interior volume of the pipe 14 communicates with the interior volume of the container body 10 via at least an opening 34 located proximate to an internal bottom of the container body 10. The liquid product can flow thereby from the container body 10 through the pipe 14 by suction. The thus-arranged pipe 14 constitutes an in-situ straw member within the in-situ straw container. The pipe 14 terminates into an opened end that may be sealed by a covering 22 and/or covered by a cap 26.

[0028] The in-situ straw container as described above may be fabricated by various methods depending on the material used. One specific method may include, for example, integrally fabricating the container body 10, the sidewalk 30, and the pipe 14 made of plastics in one single body by blow molding, wherein the sidewalk 30 is formed along with the molding of the container body 10 and the pipe 14. Additionally, an external opening (not shown) may be further arranged on, for example, the container body 10 to allow the fill of the liquid product in the container body 10. The external opening is sealed after the fill is completed (not shown). According to another manufacture method, the container body 10 and the pipe 14 may be first integrally formed in one element by blow molding without the sidewalk 30. The interior volumes of both container body 10 and pipe 14 thus freely communicate with each other from the top to the bottom of the container body 10. Subsequently, after the liquid product is filled in the container body 10, apposed portions between the container body 10 and pipe 14, except a small portion proximate to the bottom of the container body 10, are longitudinally flattened and inter-welded to form the sidewalk 30. This inter-welding may be accomplished via various methods such as heat sealing or ultra-sonic welding, for example. After inter-welding, an opening 34 is thus created inside the small portion proximate to the bottom of the container body 10 that is not inter-welded. Liquid level marks, which can be formed by, for example, direct molding or color ink printing, may be further provided on either the container body 10 or pipe 14 to indicate the volume of liquid product that remains in the in-situ straw container.

[0029] To drink the liquid product enclosed in the container body 10, the user removes the cap 26 and/or the covering 22 (the covering 22 may be possibly removed via punching). With the user’s mouth put in contact with the end opening of the pipe 14, the liquid product within the container body 10 flows out of the in-situ straw container by suction through the pipe 14.

[0030] Referring to FIG. 3 and FIG. 4, a perspective view and a cross-sectional view schematically illustrate an in-situ straw container according to a second embodiment of the present invention. As illustrated in FIG. 3 and FIG. 4, the in-situ straw container may comprise a container body 10...
and a pipe 14 such as previously described. However, the pipe 14 terminates into a manually removable top cover 36. The cover 36 is provided with grooves 44 thereon, and may be integrally formed into one body with the pipe 14. The cover 36 connects the pipe 14 via a neck 40. The neck 40 is arranged in such a manner that the cover 36 can be easily separated from the pipe 14 by manual operation to open the pipe 14. To facilitate the separation of the cover 36 from the pipe 14, various arrangements can be envisaged, including a precut of the neck 40 having a diameter smaller than that of the pipe 14, for example.

[0031] To drink the liquid product enclosed in the in-situ straw container, the user separates the cover 36 from the pipe 14. After having drunk the liquid product via the pipe 14, the user can close the pipe 14 by means of the cover 36. The cover 36 is shaped in a manner to be readily inserted upside down in the pipe 14 with the grooves 44 encroaching over the pipe 14 opening rim, as shown in FIG. 4.

[0032] Referring to FIG. 5 and FIG. 6, a perspective view and a cross-sectional view schematically illustrate an in-situ straw container according to a third embodiment of the present invention. Similar to the previous description, an in-situ straw container comprises a container body 100 and a pipe 14. The container body 100 further comprises another pipe 128 that is integrated to the container body 100 and spaced apart from the pipe 104. As illustrated in FIG. 5, the pipe 128 is preferably located opposite to the pipe 104 on the container body 100, and can be, for example, cylindrically shaped similar to the pipe 104 (other shapes are also possible). The pipe 128 terminates into an external opening 132 through which exterior air can penetrate into the in-situ straw container while the liquid product within the container body 100 is drunk. The pipe 104 terminates into an external opening 112 through which the enclosed liquid can be drank by suction. The openings 112, 132 may be sealed via blow molding. Sealing of openings 112, 132 by blow molding may be accomplished, for example, along with the molding of the container body 100 and the pipes 104, 128. During blow molding, various grooved shaped-marks can be formed on the sealing of the external openings 112, 132. A preferable shape of the sealing of the external openings 112, 132 is a cross shape as shown in FIG. 5. This preference is explained further on.

[0033] As shown in FIG. 6, a sidewall 136a substantially separates the interior volume of the pipe 104 from the interior volume of the container body 100. At least an internal opening 134 is arranged proximate to a bottom of the container body 100 to allow the interior volume of the container body 100 to communicate with the interior volume of the pipe 104. Unlike the pipe 104, the interior volume of the pipe 128 substantially communicates with the interior volume of the container body 100. Only a top portion of the in-situ straw container between the pipe 128 and the container body 100 is formed with material to form a top sidewall 136b that is substantially smaller than the sidewall 136a. Various methods can be used to fabricate the above in-situ straw container. In one example of manufacture, the container body 100, pipes 104, 128, sidewall 136a, and top sidewall 136b can be integrally fabricated in one single element by molding. In another example of manufacture, the container body 100, and pipes 104, 128 can be first integrally shaped via molding. After molding is achieved, the interior volumes of the container body 100 and the pipes 104, 108 freely communicate with one another. Subsequently, apposed portions between the container body 100 and respectively pipes 104, 128 are longitudinally flattened and inter-welded through various processes such as heat-sealing or ultra-sonic welding to form the sidewall 136a and the top sidewall 136b, respectively.

[0034] To drink the liquid product, the user pushes through the external opening 112 by means of a straw head 124a. The term “straw head” means a portion of hollow tube that may be used to punct through the sealing of the external opening 112 and be fixedly positioned in the pipe 104. The user further pushes through the external opening 132 by means of, for example, another straw head 124b. The liquid product within the container body 100 then can be drank by suction through the straw head 124a inserted in the external opening 112 of the pipe 104 while exterior air penetrates the in-situ straw container through the straw head 124b inserted in the external opening 132.

[0035] In the present embodiment, the size of the straw head 124a is substantially reduced because the pipe 104 already provides the principal and adequate straw length. As a result, problems that are related to dimensional mismatch between a separated straw and a conventional container advantageously are eliminated. Moreover, with a grooved and cross-shaped sealing of the external openings 112, 132, the straw heads 124a, 124b do not slip when punching is performed. The external opening 132 allows exterior air to enter in the in-situ straw container as the liquid enclosed flows out by suction through the pipe 104. As a result, the container body 100 does not contract due to external air pressure as the liquid enclosed is progressively sucked out through the pipe 104.

[0036] Additionally, an external opening 108 substantially larger than the external openings 112, 132 may be optionally provided on the container body 100, wherein the external opening 108 further may be sealed by a covering 116 and covered with a cap 120. The external opening 108 may be used to fill the liquid product in the in-situ straw container, or rapidly pour out the enclosed liquid with a greater flow rate. Alternatively, the user can also pour out the enclosed liquid through the straw head 124b inserted in the external opening 132 of the pipe 128 with a lower flow rate.

[0037] Preferably, the cap 120 should be sufficiently high to allow the arrangement of the straw heads 124a, 124b therein when the cap 120 closes the external opening 108, as shown in FIG. 7.

[0038] In a variant structure of the in-situ straw container of the previous embodiment, the pipes 104, 128 may protrude over the container body 100, as shown in FIG. 8. With such an arrangement, the user can drink the enclosed liquid product directly by suction through the pipe 104, and the use of straw heads 124a, 124b is not needed. The sealing of the external openings 112, 132 of the pipes 104, 128 can be arranged, for example, such as described in the previous embodiments with reference to FIG. 1 and FIG. 3 to provide easy opening.

[0039] Referring to FIG. 9 and FIG. 10, a perspective view and a cross-sectional view schematically illustrate an in-situ straw container according to a fourth embodiment of the present invention. The in-situ straw container comprises a container body 200 and a pipe 204, wherein the interior
What is claimed is:

1. An in-situ straw container comprising:
   a container body for enclosing a liquid product therein; and
   a pipe having a first external opening and integrally formed with the container body, wherein an interior volume of the pipe is substantially separated from an interior volume of the container body by a sidewall, and the interior volume of the pipe communicates with the interior volume of the container body via at least an internal opening proximate to a bottom of the container body, thereby the liquid product within the container body is sucked out through the first external opening of the pipe.

2. The in-situ straw container of claim 1, wherein the pipe further externally protrudes over the container body.

3. The in-situ straw container of claim 1, wherein the first external opening of the pipe is punched by means of a straw head to drink the liquid product within the container body.

4. The in-situ straw container of claim 1, wherein a cap and a covering further cover the first external opening of the pipe.

5. The in-situ straw container of claim 1, wherein the pipe further terminates into a manually removable cover member that externally closes the pipe, wherein the manually removable cover member is integrally formed with the pipe.

6. The in-situ straw container of claim 1, wherein a second external opening is further integrated to the in-situ straw container to allow exterior air to penetrate the in-situ straw container as the enclosed liquid product is sucked out through the first external opening of the pipe.

7. The in-situ straw container of claim 6, wherein the second external opening is exposed via punching.

8. A liquid container comprising:
   a container body including a first external opening that communicates with an interior volume of the container body, wherein the container body can substantially enclose a liquid product that can be poured out through the first external opening by inclining the liquid container; and
   a pipe having a second external opening and integrally formed with the container body, wherein the second external opening is smaller than the first external opening, an interior volume of the pipe is substantially separated from the interior volume of the container body by a sidewall, and the interior volume of the pipe communicates with the interior volume of the container body via at least an internal opening proximate to a bottom of the container body, thereby the enclosed liquid product can be sucked out through the pipe.

9. The liquid container of claim 8, wherein the first external opening and the second external opening are respectively sealed with a covering.

10. The liquid container of claim 8, wherein a cap further covers the first and second external openings.

11. The liquid container of claim 8, wherein the enclosed liquid product is drunk by suction through the second external opening by means of a straw head punched there through, wherein the straw head is further arranged in a cap that covers the first and second external openings.

12. The liquid container of claim 8, wherein the pipe further externally protrudes over the container body such
that the enclosed liquid product can be sucked out directly from the second external opening of the pipe.

13. A liquid container comprising:

a container body for enclosing a liquid product therein;

a first pipe having a first external opening and integrally formed with the container body, wherein an interior volume of the first pipe is substantially separated from an interior volume of the container body by a sidewall, and the interior volume of the first pipe communicates with the interior volume of the container body via at least an internal opening proximate to a bottom of the container body, thereby the liquid product is sucked out through the first external opening of the first pipe; and

a second pipe having a second external opening and integrally formed with the container body, wherein the interior volume of the container body substantially communicates with an interior volume of the second pipe except a top portion located between the container body and the second pipe and proximate to the second external opening where a top sidewall is located, thereby external air can enter the liquid container through the second external opening as the enclosed liquid product is sucked out through the first external opening of the first pipe.

14. The liquid container of claim 13, wherein the enclosed liquid product is drunk by suction through the first external opening after having punched through the first and second external openings by means of straw heads.

15. The liquid container of claim 13, wherein the first and second openings are closed with a grooved cross-shaped sealing that is punched by means of a straw head when the enclosed liquid product is drunk.

16. The liquid container of claim 13, wherein the first and second pipes further protrude over the container body so that the enclosed liquid product can be directly sucked out through the first external opening of the first pipe.

17. The liquid container of claim 13, wherein the liquid product within the container body is further poured out through the second external opening of the second pipe by inclining the liquid container.

18. The liquid container of claim 13, further including a third external opening substantially larger than the first and second external openings, thereby the liquid product within the container body is poured out through the third external opening with a flow rate greater than that of the second external opening.

19. The liquid container of claim 13, wherein the top sidewall at the top portion between the second pipe and the container body is substantially smaller than the sidewall between the first pipe and the container body.

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