GLASS NECK ADAPTER FOR PLASTIC BEVERAGE CONTAINER

A glass neck adapter can include universal threads to screw onto a standard conventional plastic beverage container or bottle. The glass neck adapter can be attached to a plastic bottle to allow a person drinking from the plastic bottle to feel the sensation of drinking out of a glass bottle when the lips of the drinker contact the glass mouth of the neck adapter mounted on the plastic bottle. Glass material can be molded into the shape of a glass bottle top with complementary threads to fit on a plastic bottle to define the neck adapter. The neck adapter can be made from a material selected from a group including a chemical composition at least substantially composed of soda lime glass, a PYREX® glass formulation, and borosilicate glass, each material capable of withstanding temperature changes and to resist cracking during transport and cleaning.
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FIELD OF THE INVENTION

[0001] This invention relates to removable drinking device attachments that can be attached and secured onto bottles, and more particularly to removable drinking device attachments, that when attached to the receptacle, prevent contact between the wall of the bottle and the lips of the user and relates to removable drinking device attachments that are intended to come in contact with the user's lips or mouth and has means for the beverage contained in the bottle to pass through.

BACKGROUND

[0002] Many people for years have enjoyed drinking out of glass bottles. Unfortunately, glass bottles are easily broken and heavier than plastic resulting in higher shipping cost due to the weight and breakage of glass bottles when compared with plastic containers. Furthermore, for the same reasons, consumers can be less likely to recycle glass bottles after use. Consequently, most beverage companies have replaced glass bottles with lighter and virtually unbreakable plastic beverage bottles. The plastic beverage bottle has therefore become the standard method of containing beverages since the 1970s.

[0003] U.S. Design Patent No. D324,973 discloses a combined drinking glass and bottle relating to the ornamental design for a combined drinking glass and bottle. However, it is unclear if the drinking glass portion is separable from the bottle portion of the design.


[0005] U.S. Pat. No. 6,851,565 discloses a nipple adapter for a standard narrow-mouthed beverage bottle with a bottle mouth adapter that accommodates a baby's artificial nipple cap to the standard beverage bottle. The user does not directly drink from the nipple adapter and the nipple adapter is not made out of glass.

[0006] U.S. Pat. No. 5,853,093 discloses a reclosable, two-part cap assembly for soda bottles with a bottle cap assembly, a main portion, and a lid attached to the main portion by a hinge. The bottle cap assembly is not made out of glass.

SUMMARY

[0011] The plastic bottle neck adapter can be made from a glass material for attachment to a plastic beverage container or bottle. The adapter can have a hollow cavity or passage in the center for the beverage to pass through. The hollow cavity or passage of the adapter can have threads that are complementary to the threads on the neck of a typical plastic beverage container or bottle. The threads located in the hollow cavity or passage of the adapter can be used to connect the adapter to the threaded portion of the plastic beverage container or bottle. The adapter can also have a threaded portion for receiving a typical plastic cap from the plastic beverage container or bottle being opened by the user with a complementary threaded portion for resealing of the plastic beverage container while the adapter is attached to the plastic bottle. The adapter can alternatively have an external portion on an upper end of the neck adapter simulating an upper portion of a pop-off cap style top of a glass beverage bottle.

[0012] As a result of beverage companies switch to plastic containers, consumers who enjoy drinking out of glass bottles are often forced to drink from plastic bottles and forgo the satisfactory feeling of lips touching glass associated with drinking out of a glass bottle. The lips are densely packed with nerve endings that respond to every kind of stimuli. Lips are particularly sensitive to touch and temperature. The way a person drinks a beverage can affect the perception of that beverage and the entire bottle drinking experience. If a sensation of glass touching the lips of a drinker is provided, the mind will follow with a perception of drinking out of a glass bottle. The glass mouth neck adapter allows people, who miss the feeling and perception of drinking a favorite beverage out of a glass bottle, to get that satisfactory feeling of lips touching glass while drinking out of a glass bottle, while in reality still drinking the beverage out of a plastic bottle. The glass mouth neck adapter therefore aids in the enjoyment of the beverage by changing the perception of not only the bottle but the entire bottle drinking experience.

[0013] Other applications of the present invention will become apparent to those skilled in the art when the following description of the best mode contemplated for practicing the invention is read in conjunction with the accompanying drawings.

BRIEF DESCRIPTION OF THE DRAWINGS

[0014] The description herein makes reference to the accompanying drawings wherein like reference numerals refer to like parts throughout the several views, and wherein:

[0015] FIG. 1A is a simplified perspective view of a typical plastic beverage container or bottle with external threads for closure with a cap, wherein the external threads can be engaged by a bottle neck adapter having complementary internal threads and having external threads for engagement with the cap for closure of the bottle neck adapter, while attached to the plastic bottle;

[0016] FIG. 1B is a cross sectional view of the bottle neck adapter of FIG. 1A with internal threads for engagement with the external threads of a typical plastic beverage container or bottle and having external threads for engagement with the cap for closure of the neck adapter, while attached to the plastic bottle;

[0017] FIG. 1C is a top view of the bottle neck adapter of FIG. 1A with external threads for closure of the neck adapter with a cap from a typical plastic beverage container or bottle;
FIG. 1D is a bottom view of the bottle neck adapter of FIG. 1A with internal threads complementary with external threads of a typical plastic beverage container or bottle; FIG. 2A is a simplified perspective view of a typical plastic beverage container or bottle with external threads for closure with a cap, wherein the external threads can be engaged by a bottle neck adapter having complementary internal threads and having an upper end simulating an upper portion of a pop-off cap style glass beverage container with a smooth curved contoured edge formed on top of a glass beverage bottle; FIG. 2B is a cross sectional view of the bottle neck adapter of FIG. 2A with internal threads for engagement with the external threads of a typical plastic beverage container or bottle and having a pop-off cap style top with a smooth curved contoured edge simulating an upper portion of a pop-off cap style glass beverage container or bottle; FIG. 2C is a top view of the bottle neck adapter of FIG. 2A with a pop-off cap style top with a smooth curved contoured edge simulating an upper portion of a pop-off cap style glass beverage container or bottle; FIG. 2D is a bottom view of the bottle neck adapter of FIG. 2A with internal threads complementary with external threads of a typical plastic beverage container or bottle.

DETAILED DESCRIPTION

Referring now to FIGS. 1A-1D, a bottle neck adapter can include a single, unitary, monolithic, glass material, or simulated glass material, annular neck adapter 10. The neck adapter 10 can define a fluid passage 12 extending between a first end 14 and a second end 16. A threaded portion 18 of the neck adapter 10 can be located adjacent to or in proximity with the first end 14 for connection with a complementary external threaded portion 20 of a conventional plastic beverage container or bottle 22. A peripheral edge 24 can define an opening 26 of the neck adapter 10 located at the second end 16.

The neck adapter 10 can have a centrally located aperture or fluid passage 12 and an interior threaded portion 18 complementary with an external threaded portion 20 of a typical conventional plastic beverage container or bottle 22. The interior threaded portion 18 adjacent to or in proximity with the first end 14 allows the neck adapter 10 to be threadingly engaged for attachment to a top of a conventional plastic beverage container or bottle 22. The neck adapter 10 can also include an external threaded portion 30 adjacent to or in proximity with the second end 16.

A plastic cap 28 of a typical conventional plastic beverage container or bottle 22 can be threaded over the exterior threads 30 of the neck adapter 10 located adjacent to or in proximity with the second end 16 for closure of the neck adapter 10 while attached to the typical conventional plastic beverage container or bottle 22. The neck adapter 10 can be screwed over the externally threaded portion 20 of a neck of a conventional plastic beverage container or bottle 22, by way of example and not limitation, such as a plastic soda or water bottle, so that a user can quickly adapt a standard conventional plastic beverage container or bottle 22 for drinking with the glass neck adapter 10 mounted on top of the conventional plastic beverage container or bottle 22.

The neck adapter 10 can include a generally cylindrically shaped body 32 defining an internal fluid passage 12 wherein fluid flow therethrough. An internally threaded portion 18 can be provided on an inner wall 34 of the cylindrically shaped body 32 for mating with the outer complementary bottle-top threads 20 of a conventional threaded plastic beverage container or bottle 22. The internally threaded portion 18 on the inner wall 34 of the cylindrically shaped body 32 can be used for mounting and removal respectively onto and from the conventional plastic beverage container or bottle 22.

The generally cylindrically shaped body 32 of the neck adapter 10 can include an externally threaded portion 30 on an outer wall 36 adjacent to or in proximity with the peripheral edge 24 of the cylindrically shaped body 32. The externally threaded portion 30 or the neck adapter 10 allows a user to mount and remove the conventional cap 28 taken off from the conventional plastic beverage container or bottle 22 with respect to the second end 16 of the neck adapter 10. This allows the user to reuse the existing conventional plastic cap 28 to reseal the conventional plastic beverage container or bottle 22 with the neck adapter 10 attached to the top of the conventional plastic beverage container or bottle 22. The generally cylindrically shaped body 20 can include an external textured surface 38, by way of example and not limitation, such as raised ridges, raised or recessed knurling, recessed grooves, or raised protrusions of identical or different shapes, adjacent to or in proximity with the first end 14.

Referring now to FIGS. 2A-2D, a bottle neck adapter can include a single, unitary, monolithic, glass material, or simulated glass material, annular neck adapter 10. The neck adapter 10 can define a fluid passage 12 defined by an internal surface 34 extending between a first end 14 and a second end 16. A threaded portion 18 of the neck adapter 10 can be located adjacent to or in proximity with the first end 14 for connection with a complementary external threaded portion 20 of a typical conventional plastic beverage container or bottle 22. A peripheral edge 24 can define an opening 26 of the neck adapter 10 located at the second end 16.

The neck adapter 10 can have a centrally located aperture or fluid passage 12 and an interior threaded portion 18 complementary with an external threaded portion 20 of a typical conventional plastic beverage container or bottle 22. The interior threaded portion 18 adjacent to or in proximity with the first end 14 allows the neck adapter 10 to be threadingly engaged for attachment to a top of a typical conventional plastic beverage container or bottle 22.

The neck adapter 10 can be screwed over the externally threaded portion 20 of a neck of a conventional plastic beverage container or bottle 22, by way of example and not limitation, such as a plastic soda or water bottle, so that a user can quickly adapt a standard conventional plastic beverage container or bottle 22 for drinking with the glass neck adapter 10 mounted on top of the conventional plastic beverage container or bottle 22.

The neck adapter 10 can include a generally cylindrically shaped body 32 defining an internal fluid passage 12 therein for fluid flow therethrough. An internally threaded portion 18 can be provided on an inner wall 34 of the cylindrically shaped body 32 for mating with the outer complementary bottle-top threads 20 of a conventional threaded plastic beverage container or bottle 22. The internally threaded portion 18 on the inner wall 34 of the cylindrically shaped body 32 can be used for mounting and removal respectively onto and from the conventional plastic beverage container or bottle 22. The generally cylindrically shaped body 20 can include an external textured surface 38, by way of example and not limitation, such as raised ridges, raised or
recessed knurling, recessed grooves, or raised protrusions of identical or different shapes, adjacent to or in proximity with the first end 14.

[0032] The generally cylindrically shaped body 32 of the neck adapter 10 can include a circumferential flange 40 along the peripheral edge 24 of the second end 16 from the internal surface 34 radially outwardly beyond the outer surface 36. The circumferential flange 40 can have a smooth rounded, or curved, contour extending radially outward from the inner wall 34 of the cylindrically shaped body 32 at the second end 16 simulating a pop-off cap style upper portion of a typical conventional glass beverage container or bottle. The pop-off cap style upper portion or circumferential flange 40 on the top of the generally cylindrically shaped body 32 extends perpendicular to a longitudinal axis of the cylindrical body 32, by way of example and not limitation such that a longitudinal axis of cylindrically shaped body 32 is coaxial with a longitudinal axis of the conventional plastic beverage container or bottle 22.

[0033] In either configuration as illustrated in FIGS. 1A-1D or 2A-2D, the glass neck adapter 10 can be made from a material including at least a substantial amount of soda lime glass, or a material having a chemical composition corresponding at least substantially to the original or later formulations of PYREX®, or at least a substantial amount of borosilicate glass. PYREX® glass material composition or structure is defined to include the original formulation for PYREX® glass material which was composed of as percentage of weight: 14% boron, 51% oxygen, 0.3% sodium, 1% aluminum, 38% silicon, and less than 1% potassium; later formulations of the PYREX® glass material were composed of 80.6% SiO₂, 12.6% B₂O₃, 4.2% Na₂O, 2.2% Al₂O₃, 0.04% Fe₂O₃, 0.1% CaO, 0.05% MgO, and 0.1% Cl; and current formulations sold under the PYREX® trademark have a composition of a clear tempered soda-lime glass material. The PYREX® composition can be modified with an additional amount of alumino-silicate to produce a bluish tint. It is generally known to those skilled in the art to add other materials to the compositions of glass in insubstantial amounts to provide various colors of glass as desired.

[0034] It should be recognized by those skilled in the art that the glass neck adapter can be manufactured with different variations of colors without departing from the chemical composition or materials described above, and/or can include different indicia, by way of example and not limitation, such as letters, words, graphics, and/or logos.

[0035] While the invention has been described in connection with what is presently considered to be the most practical and preferred embodiment, it is to be understood that the invention is not to be limited to the disclosed embodiments but, on the contrary, is intended to cover various modifications and equivalent arrangements included within the spirit and scope of the appended claims, which scope is to be accorded the broadest interpretation so as to encompass all such modifications and equivalent structures as is permitted under the law.

1. A device for attachment to a plastic beverage container having a threaded portion for receiving a cap with a complementary threaded portion for closure of the plastic beverage container, the device comprising:
   a neck adapter defining an external surface portion simulating an upper portion of a glass beverage bottle intended to come into contact with lips of a user to provide a sensation of drinking out of a glass bottle; the neck adapter having a fluid passage extending between first and second ends, a complementary threaded portion of the neck adapter at the first end for connection with the threaded portion of the plastic beverage container, and a peripheral edge defining an opening of the neck adapter at the second end.

2. The device of claim 1 further comprising:
   the neck adapter formed of a single, unitary, monolithic structure.

3. The device of claim 1 further comprising:
   the neck adapter made of a glass material.

4. The device of claim 1 further comprising:
   the neck adapter made of a clear tempered soda-lime glass material.

5. The device of claim 1 further comprising:
   the neck adapter made of a PYREX® glass material.

6. The device of claim 5 further comprising:
   the PYREX® glass material composed of as percentage of weight: 14% boron, 51% oxygen, 0.3% sodium, 1% aluminum, 38% silicon, and less than 1% potassium.

7. The device of claim 5 further comprising:
   the PYREX® glass material composed of 80.6% SiO₂, 12.6% B₂O₃, 4.2% Na₂O, 2.2% Al₂O₃, 0.04% Fe₂O₃, 0.1% CaO, 0.05% MgO, and 0.1% Cl.

8. The device of claim 5 further comprising:
   an additional amount of alumino-silicate to produce a bluish tint.

(Canceled)

9. The device of claim 5 further comprising:
   the peripheral edge having a smooth rounded contour simulating a pop-off cap top portion of a glass beverage bottle.

10. The device of claim 1 further comprising:
    a complementary threaded portion adjacent to the peripheral edge for receiving the cap of the plastic beverage container for closure of the neck adapter.

11. A device for attachment to a plastic beverage container having a threaded portion for receiving a cap with a complementary threaded portion for closure of the plastic beverage container, the device comprising:
    a neck adapter defining an external surface portion simulating an upper portion of a glass beverage bottle intended to come into contact with lips of a user to provide a sensation of drinking out of a glass bottle, the neck adapter having a fluid passage extending between first and second ends, a complementary threaded portion of the neck adapter at the first end for connection with the threaded portion of the plastic beverage container, and a peripheral edge defining an opening of the neck adapter at the second end, the neck adapter formed of a single, unitary, monolithic glass material structure.

13. The device of claim 12 further comprising:
   the neck adapter made of a clear tempered soda-lime glass material.

14. The device of claim 12 further comprising:
   the neck adapter made of a PYREX® glass material.

15. The device of claim 14 further comprising:
   the PYREX® glass material composed of as percentage of weight: 14% boron, 51% oxygen, 0.3% sodium, 1% aluminum, 38% silicon, and less than 1% potassium.

16. The device of claim 14 further comprising:
   the PYREX® glass material composed of 80.6% SiO₂, 12.6% B₂O₃, 4.2% Na₂O, 2.2% Al₂O₃, 0.04% Fe₂O₃, 0.1% CaO, 0.05% MgO, and 0.1% Cl.
17. The device of claim 14 further comprising: an additional amount of alumino-sulfate added to the PYREX® glass material to produce a bluish tint.

18. (canceled)

19. The device of claim 12 further comprising: the peripheral edge having one of a smooth rounded contour simulating a pop-off cap top portion of a glass beverage bottle and a complementary threaded portion adjacent to the peripheral edge for receiving the cap of the plastic beverage container for closure of the neck adapter.

20. For use with a plastic beverage container having a threaded portion for receiving a cap with a complementary threaded portion for closure of the plastic beverage container, the improvement of a device comprising: a neck adapter defining a fluid passage extending between first and second ends, a complementary threaded portion of the neck adapter at the first end for connection with the threaded portion of the plastic beverage container, and a peripheral edge defining an opening of the neck adapter at the second end, the neck adapter formed of a single, unitary, monolithic glass material structure, an external surface portion of the neck adapter simulating an upper portion of a glass beverage bottle intended to come into contact with lips of a user to provide a sensation of drinking out of a glass bottle, and the peripheral edge having one of a smooth rounded contour simulating a pop-off cap top portion of a glass beverage bottle and a complementary threaded portion adjacent to the peripheral edge for receiving the cap of the plastic beverage container for closure of the neck adapter.

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