

CONTACT LENS PACKAGE AND APPLICATOR WITH METHOD FOR ITS USE

Related Applications

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Field of Invention

The present invention relates to packages for the storage and shipping of contact lenses. More particularly, the present invention relates to packages having an internal drainage system that allows separation of the saline solution from the contact lens at the time that the lens is removed from the package and to packages that may be used as contact lens applicators.

10 Background of the Invention

Soft contact lenses have become increasingly popular since they were first introduced in the 1970's. Due to progressive reductions in manufacturing costs, soft contact lenses are now an attractive and economical choice for the consuming public. Such lenses may be frequently replaced by the consumers (e.g., on a daily or weekly basis) and do not need to be cleaned or sterilized as often as traditional contact lenses. Of course, the consumer desires to keep a supply of lenses on hand that is commensurate with the frequency with which the lenses are replaced. Therefore, consumer demand for disposable contact lenses has led to a need for disposable packages that are easy to use and inexpensive. The packages should be constructed to provide safe storage and shipping for the lenses. It is also desirable that the individual

packages be as small as possible, so that they may be easily and unobtrusively stored and carried.

Contact lenses typically are packaged and stored in a hydrated state, which requires that they be sealed in packages with a storage solution.

5 One widely-used contact lens package is the "blister pack", which, in general, comprises a rigid plastic container having a flat upper surface with a concave-shaped well that contains a single contact lens with a quantity of storage solution. The well is covered with a flexible cover that is sealed along the perimeter of the upper surface. The blister packs are boxed for shipping and
10 storage until a lens is needed by a consumer. The consumer then peels back the flexible cover from the blister pack to expose the contact lens. The consumer then pours the contact lens out into his hand, together with the saline solution, and places the lens on the tip of his finger for application to the eye.

A need remains for contact lens packaging systems that include a
15 saline solution for storage and shipping of the contact lenses, but allow the saline solution to be separated from the lens at the time that the lens is removed from the package so that the consumer does not need to handle or otherwise come into contact with the saline solution. A need also remains for contact lens packaging systems that enable the consumer to apply the contact
20 lens directly to the eye, without the need to touch the lens with the fingers.

Summary of Invention

A contact lens package according to one aspect of the present invention comprises a container with a lens cup and a lid that covers the lens
25 cup to form a chamber sized and shaped to contain a contact lens, and a

handle for manipulating the contact lens package between a first orientation in which the chamber is substantially filled with liquid, such as saline solution, and a second orientation in which the chamber is substantially empty of liquid. Preferably, the lens cup has a drainage member through which the liquid drains
5 into a second chamber in the contact lens package. The drainage member preferably includes a mesh or a plastic sheet having perforations therethrough. The handle and container are symmetrical about a common longitudinal axis and the handle, preferably, is substantially conical in shape with ridges on its exterior. The handle is sized so that a consumer may grasp it between his or
10 her fingers.

A contact lens applicator according to another aspect of the present invention comprises a container including a lens cup and a lid covering the lens cup so as to form a chamber sized and shaped to contain a contact lens and a handle for manipulating the contact lens applicator. The lid is
15 movable between a closed position in which the contact lens is concealed and an open position in which the contact lens is accessible for direct application of the contact lens to the user's eye. Preferably, the lens cup is sized and shaped to hold the contact lens so that a peripheral portion of the lens is exposed outside of the lens cup when the lid is in its open position.

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Brief Description of the Drawings

For a more complete understanding of the present invention, reference is made to the following detailed description of the present invention considered in conjunction with the accompanying drawings, in which:

FIG. 1 is a cross-sectional view of an embodiment of a contact lens package according to the present invention in which the contact lens package is sealed for shipping and storage.

FIG. 2 is a cross-sectional view of the contact lens package of FIG. 1.

FIG. 3 is a perspective view of the contact lens package of FIG. 1 in an upright and opened state.

FIG. 4 is a cross-sectional view of the contact lens package of FIG. 3.

Detailed Description of the Invention

A preferred embodiment of a contact lens package 2 according to the present invention is shown in FIGS. 1-4. Referring to FIG. 1, a contact lens package 2 has a contact lens container 4 and a handle 6 that is mated to the contact lens container 4. The contact lens container 4 includes a shell 8 and a lid 10 that is hingedly attached to the shell 8 by a hinge 12.

Referring now to FIG. 2, the shell 8 includes an interior cavity 14 having a rim 16. A drainage member 18, such as a mesh or a perforated plastic sheet, is secured within the interior cavity 14 so as to define a first chamber 20 within the interior cavity 14 and a lens cup 22 that is formed from the drainage member 18, the rim 16 of the shell 8 and the portion 24 of the shell 8 that is between the drainage member 18 and the rim 16. The lens cup 22 is sized and shaped to hold a single contact lens 26 so that the peripheral edge 28 of the contact lens 26 extends beyond the rim 16 (see FIG. 3). The lid

10 has a rim 30 that is sized and shaped to fit closely against the rim 16 of the shell 8, so that the lid 10 and the lens cup 22 form a second chamber 32 that sized and shaped to contain the contact lens 26. A sealing strip 34 is removably attached to the contact lens container 4 so as to secure the shell 8
5 and the lid 10 to one another and to form a liquid-tight seal where the shell 8 contacts the lid 10. Preferably, the second chamber 32 is smaller in volume than the first chamber 20, which is sized to receive a quantity of saline solution 36. Still referring to FIG. 2, the handle 6 is fabricated as a hollow conical piece with an open end 38. The contact lens container 4 is provided with a plug 40 at
10 the end 42 of the contact lens container 4 opposite the lid 10. The plug 40 is sized and shaped to form a friction fit when inserted into the open end 38 of the handle 6, thereby securing the contact lens container 4 to the handle 6.

The contact lens package 2 is shipped or stored with the handle 6 uppermost, as shown in FIGS. 1 and 2, with the contact lens 26 fully
15 submerged in the saline solution 36 in the second chamber 32. The consumer flips the contact lens package 2 over so that the lid 10 is uppermost, as shown in FIGS. 3 and 4, allowing the saline solution 36 to drain through the drainage member 18 into the chamber 14. The consumer then pulls away the sealing strip 34, releasing the lid 10 (see FIGS. 3 and 4) and providing access to the
20 contact lens 26. Because the peripheral edge 28 of the contact lens 26 extends beyond the rim 16 of the shell 8, the consumer can use the contact lens package 2 as an applicator to transfer the contact lens 26 directly to the eye, rather than transferring the contact lens 26 with a finger. The handle 6 may be provided with ridges 44 so that the consumer may securely grip the

handle 6 while manipulating the contact lens package 2 and transferring the contact lens 26 to the eye.

The drainage of the saline solution 36 into the first chamber 20 should leave the contact lens 26 free of the saline solution 36. Therefore, it is preferable that the drainage member 18 be arranged to allow rapid and complete drainage of the saline solution 26 from the lens cup 22 into the chamber 20. The drainage member 18, therefore, is preferably an open mesh, as in FIG. 4, although, as an alternative, a perforated sheet of a hydrophobic plastic material may be used, as in FIG. 4.

The contact lens package 2 of the present invention can be fabricated to have a lens cup 22 with a diameter of about 2-3 cm, with its minimum dimension limited only by the size of the contact lens to be stored. Similarly, the minimum volume of the chamber 20 is limited only by the volume of saline solution 36 to be provided. For easy handling, the overall length of the contact lens package 2 may be about 6-10 cm. The resulting small overall size of the contact lens package 2 allows it to be easily and unobtrusively carried. The contact lens package 2 may be styled to provide the same look and feel as a common item of about the same size, such as a cologne bottle

It will be understood that the embodiment described herein is merely exemplary and that a person skilled in the art may make many variations and modifications without departing from the spirit and scope of the present invention. For example, the handle 6 and shell 8 may be fabricated as a single piece with the shell 8 being open to the interior of the handle 6. In another example, the contact lens container 4 may be secured to the handle 6 by means other than a plug. The lid 10 need not be secured to the shell 8 by a

sealing strip 34, but could be friction-fit to the shell 8. Alternatively, the shell 8 and lid 10 could be threaded so as to screw-fit with each other. All such variations and modifications, including those discussed within the detailed description, are intended to be included within the scope of the present
5 invention.

We claim:

1. A contact lens package, comprising:
 - a container including a lens cup and a lid removably covering said lens cup so as to form a first chamber sized and shaped to contain a contact lens;
 - a contact lens within said first chamber;
 - a predetermined quantity of a liquid within said container; and
 - a handle for manipulating said contact lens package such that said contact lens package is movable between a first orientation in which said first chamber is substantially filled with said liquid and a second orientation in which said first chamber is substantially empty of said liquid.
2. The contact lens package of Claim 1, wherein said contact lens package includes a second chamber arranged to receive the entire predetermined quantity of said liquid when said container is in said second orientation.
3. The contact lens package of Claim 2, wherein said lens cup includes a drainage member through which the liquid drains from said first chamber to said second chamber.
4. The contact lens package of Claim 3, wherein said drainage member separates said lens cup from said second chamber.
5. The contact lens package of Claim 4, wherein said drainage member includes a mesh.
6. The contact lens package of Claim 4, wherein said drainage member includes a plastic sheet having perforations therethrough.

7. The contact lens package of Claim 1, wherein said lens cup and said lid are sized and shaped so as to fit against each other, said container further comprising a sealing element removably attached to said container so as to form a liquid-tight seal between said lens cup and said lid.

5 8. The contact lens package of Claim 1, wherein said lid is sized and shaped to fit against said lens cup so as to form a liquid-tight seal.

9. The contact lens package of Claim 1, wherein said lid is hingedly attached to said lens cup.

10 10. The contact lens package of Claim 1, wherein said handle and said container are symmetrical about an axis common to said handle and said container.

11. The contact lens package of Claim 10, wherein said handle is substantially conical in shape.

15 12. The contact lens package of Claim 10, wherein said handle has an exterior and has a plurality of ribs extending along said exterior.

13. The contact lens package of Claim 1, wherein said handle defines an opening and is hollow, said container having a plug fitting arranged so as to form a friction fit with said handle when said plug fitting is inserted into said opening.

20 14. A contact lens applicator, comprising:
a container including a lens cup and a lid covering said lens cup so as to form a chamber sized and shaped to contain a contact lens, said lid being movable between a closed position in which the contact lens is concealed and an open position in which said contact lens is accessible to a
25 user for direct application of the contact lens to the user's eye; and

a handle for manipulating said contact lens applicator.

15 15. The contact lens applicator of Claim 14, wherein said lens cup is sized and shaped to hold said contact lens such that a peripheral portion of the contact lens is exposed outside of said lens cup when said lid is in said open position.

16. The contact lens applicator of Claim 15, wherein said handle and said container are symmetrical about an axis common to said handle and said container, said handle having an exterior and a plurality of ribs extending along said exterior.

10 17. A method of applying a contact lens using an applicator having a lens cup and a lid covering the lens cup so as to form a lens chamber sized and shaped to contain the contact lens and a quantity of liquid, and a handle, said method comprising the steps of:

15 positioning the applicator in a first orientation such that the lens chamber is substantially filled with the liquid;

 manipulating the handle to thereby position the contact lens package in a second orientation such that the lens chamber is substantially empty of the liquid;

20 moving the lid to an open position whereby the contact lens is accessible to a user; and

 manipulating the handle to thereby apply the contact lens to the user's eye.

25 18. The method of Claim 17, further comprising the step of draining the liquid from the lens chamber into a collection chamber internal to the applicator through a drainage member.