CLAIMS

1. A method for producing a contact lens, comprising:

(a) providing a mold including a female mold half having a first optical molding surface and a male mold half having a second optical molding surface, wherein the female and male mold halves are configured to receive each other such that a mold cavity is formed between the first and second optical molding surfaces, and wherein the female mold half and the male mold half each has a circular circumferential flange;

(b) dispensing a polymerizable lens-forming material into one of the female and male mold halves and mating the female and male mold halves to close the mold;

(c) polymerizing the polymerizable lens-forming material located between the female and male mold halves, thereby forming a molded contact lens;

(d) inserting a first pry finger set between the circular circumferential flanges of the female mold half and the male mold half of the mold;

(e) applying a restraining force to the female mold half with the first pry finger set for maintaining the female mold half in a fixed position;

(f) applying a force to a non-optical molding surface of the female mold half with a pin at a location about the center area of the non-optical molding surface of the female mold half to deform the female mold half, thereby breaking the bonds between the first optical molding surface of the female mold half and the contact lens; and

(g) applying a vertical lifting movement to the male mold half while maintaining the restraining force on the female mold half with the first pry finger set so as to effectuate gradual separation between the female mold half and the male mold half,

wherein the contact lens adheres to the male mold half when separating the female and male mold halves, provided that the first and second optical molding surfaces of the female mold half and of the male mold half are not treated before or after dispensing the polymerizable lens-forming material into one of the female and male mold halves to render the

molded contact lens preferentially adhered to the female mold half or to the male mold half when separating the female and male mold halves;

wherein the contact lens is a silicone hydrogel contact lens;

wherein step (a) further comprises providing a mold wherein one of the female and male mold halves has a collar that encircles the other mold half to provide a seal between the female and male mold halves when the mold is closed;

wherein step (d) further comprises inserting a second pry finger set between the circular circumferential flanges of the female mold half and the male mold half of the mold;

wherein the first pry finger set is located above the circumferential flange of the female mold half and the second pry finger set is located beneath the circumferential flange of the male mold half; and

wherein step (g) further comprises applying the vertical lifting movement to the male mold half with the second pry finger set.

2. The method of claim 1, wherein the force is applied to the non-optical molding surface of the female mold half with the pin at the location about the center area of the non-optical molding surface of the female mold half at an angle of less than about 30 degrees relative to a longitudinal axis of the mold.

3. The method of claim 2, wherein the force is applied to the non-optical molding surface of the female mold half with the pin at the location about the center area of the non-optical molding surface of the female mold half at an angle of less than about 10 degrees relative to the longitudinal axis of the mold.

4. The method of claim 3, wherein the force is applied to the non-optical molding surface of the female mold half with the pin at a location about the center area of the non-optical molding surface of the female mold half at an angle of less than about 5 degrees relative to the longitudinal axis of the mold.

5. The method of claim 1, wherein the polymerizable lens-forming material comprises at least one silicone-containing vinylic monomer or at least one silicone-containing vinylic macromer or at least one silicone-containing prepolymer having ethylenically unsaturated groups.

6. The method of claim 5, wherein the polymerizable lens-forming material is polymerized by thermal curing.

7. An apparatus for demolding a contact lens from a mold including a female mold half having a first optical molding surface and a male mold half having a second optical molding surface, wherein the female and male mold halves are configured to receive each other such that a mold cavity is formed between the first and second optical molding surfaces, the female mold half and the male mold half each has a circular circumferential flange, the apparatus comprising:

a mold-prying device; and

a pin-pushing device,

wherein the mold-prying device comprises a first pry finger set configured to be inserted between the circular circumferential flanges of the female mold half and the male mold half of the mold;

wherein the pin-pushing device has a pin for applying a force to a non-optical molding surface of the female mold half at a location about the center area of the non-optical molding surface of the female mold half and along a longitudinal axis of the mold to deform the female mold half between the pin and the first pry finger set so as to break the bonds between the optical molding surface of the female mold half and the contact lens, whereby the contact lens adheres to the male mold half when separating the female and male mold halves;

wherein the contact lens is a silicone hydrogel contact lens;

wherein one of the female and male mold halves has a collar that encircles the other mold half to provide a seal between the female and male mold halves when the mold is closed;

wherein the mold-prying device further comprises a second pry finger set inserted between the circular circumferential flanges of the female mold half and the male mold half of the mold; and

wherein the first pry finger set is located above the circumferential flange of the female mold half for keeping the female mold half in a fixed position and the second pry finger set is located beneath the circumferential flange of the male mold half for applying a vertical lifting movement to the male mold half.

8. The apparatus of claim 7, wherein the pin-pushing device having the pin is configured to apply the force directly to the non-optical molding surface of the female mold half with the pin at the location about the center area of the non-optical molding surface of the female mold half at an angle of less than about 30 degrees relative to the longitudinal axis of the mold.

9. The apparatus of claim 8, wherein the pin-pushing device having the pin is configured to apply the force directly to the non-optical molding surface of the female mold half with the pin at the location about the center area of the non-optical molding surface of the female mold half at an angle of less than about 10 degrees relative to the longitudinal axis of the mold.

10. The apparatus of claim 9, wherein the pin-pushing device having the pin is configured to apply the force directly to the non-optical molding surface of the female mold half with the pin at the location about the center area of the non-optical molding surface of the female mold half at an angle of less than about 5 degrees relative to the longitudinal axis of the mold.