

Claims

What is claimed is:

1. An ophthalmic lens comprising:
a first surface; and
a second surface disposed opposite the first surface and defining a volume of lens material therebetween,
wherein a thickness profile of the volume of lens material is derived from one or more eyelid profiles such that a thickness gradient of at least a portion of the volume of lens material is oriented to be orthogonal to a target eyelid margin shape.
2. The ophthalmic lens of claim 1, wherein the one or more eyelid profiles comprise biometric data associated with one or more of the position or shape of one or more of upper or lower eyelid margins for a population of eyes.
3. The ophthalmic lens of claim 1, wherein the one or more eyelid profiles comprise biometric data associated with a population of eyes in a target position of gaze.
4. The ophthalmic lens of claim 1, wherein the one or more eyelid profiles comprise biometric data associated with a population of eyes in a plurality of positions of gaze.
5. The ophthalmic lens of claim 1, wherein the one or more eyelid profiles comprise biometric data associated with a population of eyes in one or more stages of blink.
6. The ophthalmic lens of claim 1, wherein the one or more eyelid profiles comprise biometric data associated with one or more of the position or shape of one or more of upper or lower eyelid margins for at least one eye.
7. The ophthalmic lens of claim 1, wherein the one or more eyelid profiles comprise biometric data associated with at least one eye in a target position of gaze.

8. The ophthalmic lens of claim 1, wherein the one or more eyelid profiles comprise biometric data associated with at least one eye in a plurality of positions of gaze.
9. The ophthalmic lens of claim 1, further comprising a stabilization zone defined in or on the volume of material, wherein the thickness profile is associated with the stabilization zone.
10. The ophthalmic lens of claim 1, wherein the portion of the volume of lens material comprises an annulus volume disposed between an edge of the ophthalmic lens and an optical zone radius.
11. The ophthalmic lens of claim 10, wherein the optical zone radius is between 3 and 5mm from the center of the ophthalmic lens.
12. The ophthalmic lens of claim 1, wherein the portion of the volume of lens material comprises an annulus volume excluding a radial region between an edge of the ophthalmic lens and a radius between 1-300 microns from the edge of the ophthalmic lens.
13. A method comprising:
 - determining one or more eyelid profiles associated with one or more eyelids;
 - determining, based on the one or more eyelid profiles, a target eyelid margin shape;
 - designing, based on at least the target eyelid margin shape, an ophthalmic lens
 - comprising a first surface and a second surface disposed opposite the first surface
 - and defining a volume of lens material therebetween,
 - wherein a thickness profile of at least a portion the volume of lens material is derived from the one or more eyelid profiles such that a thickness gradient of the at least a portion of the volume of lens material is oriented to be orthogonal to the target eyelid margin shape.

14. The method of claim 13, wherein the one or more eyelid profiles comprise biometric data associated with one or more of the position or shape of one or more of upper or lower eyelid margins for a population of eyes.
15. The method of claim 13, wherein the one or more eyelid profiles comprise biometric data associated with a population of eyes in a target position of gaze.
16. The method of claim 13, wherein the one or more eyelid profiles comprise biometric data associated with a population of eyes in a plurality of positions of gaze.
17. The method of claim 13, wherein the one or more eyelid profiles comprise biometric data associated with a population of eyes in one or more stages of blink.
18. The method of claim 13, wherein the one or more eyelid profiles comprise biometric data associated with one or more of the position or shape of one or more of upper or lower eyelid margins for at least one eye.
19. The method of claim 13, wherein the one or more eyelid profiles comprise biometric data associated with at least one eye in a target position of gaze.
20. The method of claim 13, wherein the one or more eyelid profiles comprise biometric data associated with at least one eye in a plurality of positions of gaze.
21. The method of claim 13, further comprising a stabilization zone defined in or on the volume of material, wherein the thickness profile is associated with the stabilization zone.
22. The method of claim 13, wherein the portion of the volume of lens material comprises an annulus volume disposed between an edge of the ophthalmic lens and an optical zone radius.

23. The method of claim 22, wherein the optical zone radius is between 3 and 5mm from the center of the ophthalmic lens.
24. The method of claim 13, wherein the portion of the volume of lens material comprises an annulus volume excluding a radial region between an edge of the ophthalmic lens and a radius between 1-300 microns from the edge of the ophthalmic lens.
25. A method comprising:
determining one or more eyelid profiles associated with one or more eyelids;
determining, based on the one or more eyelid profiles, a target eyelid margin shape;
forming, based on at least the target eyelid margin shape, an ophthalmic lens comprising a first surface and a second surface disposed opposite the first surface and defining a volume of lens material therebetween,
wherein a thickness profile of the volume of lens material is derived from the one or more eyelid profiles such that a thickness gradient of at least a portion of the volume of lens material is oriented to be substantially orthogonal to the target eyelid margin shape.
26. The method of claim 25, wherein the one or more eyelid profiles comprise biometric data associated with one or more of the position or shape of one or more of upper or lower eyelid margins for a population of eyes.
27. The method of claim 25, wherein the one or more eyelid profiles comprise biometric data associated with a population of eyes in a target position of gaze.
28. The method of claim 25, wherein the one or more eyelid profiles comprise biometric data associated with a population of eyes in a plurality of positions of gaze.
29. The method of claim 25, wherein the one or more eyelid profiles comprise biometric data associated with a population of eyes in one or more stages of blink.

30. The method of claim 25, wherein the one or more eyelid profiles comprise biometric data associated with one or more of the position or shape of one or more of upper or lower eyelid margins for at least one eye.
31. The method of claim 25, wherein the one or more eyelid profiles comprise biometric data associated with at least one eye in a target position of gaze.
32. The method of claim 25, wherein the one or more eyelid profiles comprise biometric data associated with at least one eye in a plurality of positions of gaze.
33. The method of claim 25, further comprising a stabilization zone defined in or on the volume of material, wherein the thickness profile is associated with the stabilization zone.
34. The method of claim 25, wherein the portion of the volume of lens material comprises an annulus volume disposed between an edge of the ophthalmic lens and an optical zone radius.
35. The method of claim 34, wherein the optical zone radius is between 3 and 5mm from the center of the ophthalmic lens.
36. The method of claim 25, wherein the portion of the volume of lens material comprises an annulus volume excluding a radial region between an edge of the ophthalmic lens and a radius between 1-300 microns from the edge of the ophthalmic lens.
37. An ophthalmic lens comprising:
a first surface; and
a second surface disposed opposite the first surface and defining a volume of lens material therebetween,
wherein a thickness profile of the volume of lens material is derived from one or more eyelid profiles such that a thickness gradient of at least a portion of the volume of

lens material is oriented to be substantially orthogonal to a target eyelid margin shape.

38. The ophthalmic lens of claim 37, wherein the one or more eyelid profiles comprise biometric data associated with one or more of the position or shape of one or more of upper or lower eyelid margins for a population of eyes.
39. The ophthalmic lens of claim 37, wherein the one or more eyelid profiles comprise biometric data associated with a population of eyes in a target position of gaze.
40. The ophthalmic lens of claim 37, wherein the one or more eyelid profiles comprise biometric data associated with a population of eyes in a plurality of positions of gaze.
41. The ophthalmic lens of claim 37, wherein the one or more eyelid profiles comprise biometric data associated with a population of eyes in one or more stages of blink.
42. The ophthalmic lens of claim 37, wherein the one or more eyelid profiles comprise biometric data associated with one or more of the position or shape of one or more of upper or lower eyelid margins for at least one eye.
43. The ophthalmic lens of claim 37, wherein the one or more eyelid profiles comprise biometric data associated with at least one eye in a target position of gaze.
44. The ophthalmic lens of claim 37, wherein the one or more eyelid profiles comprise biometric data associated with at least one eye in a plurality of positions of gaze.
45. The ophthalmic lens of claim 37, further comprising a stabilization zone defined in or on the volume of material, wherein the thickness profile is associated with the stabilization zone.

46. The ophthalmic lens of claim 37, wherein the portion of the volume of lens material comprises an annulus volume disposed between an edge of the ophthalmic lens and an optical zone radius.
47. The ophthalmic lens of claim 46, wherein the optical zone radius is between 3 and 5mm from the center of the ophthalmic lens.
48. The ophthalmic lens of claim 37, wherein the portion of the volume of lens material comprises an annulus volume excluding a radial region between an edge of the ophthalmic lens and a radius between 1-300 microns from the edge of the ophthalmic lens.
49. The ophthalmic lens of claim 37, wherein substantially orthogonal comprises orthogonal angles and angles that are +/- 20 degrees from orthogonal.