[0028] As used herein, an ion-impermeable portion refers to a portion of a contact lens body that has no measurable ion diffusion. As understood by persons skilled in the art, ion diffusion of hydrogel and silicone hydrogel contact lenses is quantified by determining the ionoflux diffusion coefficient through a contact lens. A method of determining the ionoflux diffusion coefficient of the present contact lenses is described herein. Thus, it can be understood that the ion-impermeable portion of the contact lens body has an undetectable ionoflux diffusion coefficient using the method and equipment described herein. In comparison, the ion-permeable portion of the contact lens body does have a measurable ionoflux diffusion coefficient using the method and equipment described herein. It can be understood that, as used herein, an ion-permeable portion or an ion-impermeable portion refers to different portions having different material properties, namely different ion-permeabilities. As used herein, a portion does not have a geometric limitation unless specifically stated. We have found that the method and equipment described herein can measure ionoflux diffusion coefficients higher than 5×10^{-7} mm^2/min, so a contact lens body or a portion of the contact lens body having an ionoflux diffusion coefficient of less than 5×10^{-7} mm^2/min is regarded as being not measurable and hence ion-impermeable. For a contact lens body having a measurable ionoflux diffusion coefficient (i.e. an ionoflux diffusion coefficient of more than 5×10^{-7} mm^2/min), the ionoflux diffusion coefficient of the lens body as a whole will depend upon the ionoflux diffusion coefficients of the ion permeable and ion impermeable portions of the lens body and the proportion of the area of the lens body taken up by those portions. It will often be apparent when a portion of the lens body is ion-impermeable; for example, when it includes a metal layer that extends across the whole of the portion and hence prevents any ions from passing through the portion. Where it is not so apparent, the ion permeability or impermeability of a region of the lens can be measured by separately measuring the ionoflux diffusion coefficient of a sample of the materials making up the region and by considering the geometric arrangement of the samples in the region; in other words, the region of the lens will be ion-impermeable if one or more ion-impermeable materials together or separately extend across the whole of the region. Alternatively, if the ionoflux diffusion coefficient of the material(s) forming the permeable portion of the lens body is known or measured separately, the ionoflux diffusion coefficient of another portion can be calculated from the ratio of the areas of the permeable portion and the other portion and a measurement of the ionoflux diffusion coefficient of the whole lens body.

water. Leads of the conductivity meter were immersed in the deionized water of the receiving chamber and a stir bar was added to the receiving chamber. The receiving chamber was placed in a water bath and the temperature was held at about 35° C. Finally, the donor chamber was immersed in the receiving chamber such that the NaCl solution inside the donor chamber was level with the water inside the receiving chamber. Once the temperature inside the receiving chamber was equilibrated to 35 degrees C, measurements of conductivity were taken every 2 minutes for at least 10 minutes, and sometimes, such as when the ionoflux diffusion coefficient values are low, the measurements are taken for a time period of up to about 3 hours or 4 hours. The conductivity increased substantially linearly with time. The conductivity versus time data was used to calculate the ionoflux value (the ionoflux diffusion coefficient) for the lenses tested.

[0034] The thickness of portions or regions of the present contact lenses can be measured using conventional techniques. For example, the thickness can be measured using a Rehder Gauge Model ET-3 electronic thickness gauge or equivalent thickness gauge instrument, including instruments that provide optical measurements of the contact lenses. In embodiments in which the ion-permeable portion of the contact lens body is a hydrogel or silicone hydrogel, it is desirable to measure the thickness in a hydrated state since the hydrogel or silicone hydrogel can swell when hydrated. As used herein, the thickness measurements are reported without any correction, which may be due to mechanical compression as when the Rehder Gauge is used. In the context of the present disclosure, an average thickness of a region of the contact lens or the average thickness of the entire contact lens is determined. The average thickness can be determined using any suitable technique apparent to one of ordinary skill in the art. For example, the thickness of a contact lens is measured at multiple locations across the lens body. The measured thickness values are then summed, and the sum is divided by the number of measurements made to obtain the average thickness. As one example, thickness measurements can be made at multiple points in a straight line from one lens edge to the opposing lens edge, such as along the 0/180 degree meridians or along the 90/270 degree meridians (as shown in FIG. 3, thickness measurement sites are shown by the dots in FIG. 3, some of which are labeled 30). It may be desirable to measure four or more points, and possibly up to about 20 distinct points. In some embodiments, the thickness measurements are made at a number of sites numbering from 4 to 200. As another example, the contact lens may be visually divided into four quadrants defined by the 0 degree, 90 degree, 180 degree, and

270 degree meridians, and at least one thickness measurement can be made in each quadrant (as shown in FIG. 4, where the thickness measurement sites are shown as dots labeled 30). Any suitable number of thickness measurements can be obtained so long as the person doing the measurements believes that the average calculated from the measurements is an accurate depiction of the average thickness of the contact lens or the average thickness of the region of the contact lens. In embodiments disclosed herein, the average thickness is calculated using at least four thickness measurements. In some embodiments, at least eight thickness measurements are obtained. In further embodiments, at least twelve thickness measurements are obtained. In some embodiments, the average thickness is determined by measuring the thickness at a minimum of four locations and up to one hundred locations.

[0035] Using the ionoflux diffusion coefficient, as measured above, and the average thickness measurements, as described above, the inventors have calculated the average ionoflux transmittance. Thus, the average ionoflux transmittance of a contact lens body is understood to be the ionoflux diffusion coefficient of the contact lens body divided by the average thickness of the contact lens body.

[0036] Alternately, the average ionoflux transmittance of the lens body, which is composed by a number of n different components having different ionoflux diffusion coefficients (D_{ion}) and thickness values (h), respectively, can be determined using Formula 1:

$$\frac{\sum_{i=1}^{n} A_i \frac{D_{ion_i}}{h_i}}{\sum_{i=1}^{n} A_i} \qquad \text{(Formula 1)}$$

[0037] where $\frac{D_{ion_i}}{h_i}$ is the ionoflux transmittance (mm/min) of the i-th component, and A_i is the cross-section surface area of the i-th component from plan view.

[0038] If Formula 1 is used to determine the average ionoflux transmittance, the ion transport through a component of lens body comprising multiple layers of different materials with different ionoflux diffusion coefficient can be considered as diffusion through the various layers in series, and thus, the effective ionoflux diffusion coefficient $D_{ion_{eff}}$ can be obtained as

$$\frac{h_{eff}}{D_{ion_{eff}}} = \sum_{j=1}^{m} \frac{h_j}{D_{ion_j}} \qquad \text{(Formula 2)}$$

What is claimed is:

1. A contact lens, comprising:

a lens body that comprises an ion-impermeable portion, and an ion-permeable portion, the lens body having an average ionoflux transmittance of at least $1.34x10^{-4}$ mm/min and wherein the lens body comprises an optic zone that comprises an electronically adjustable optic.

2. The contact lens of claim 1, wherein the lens body further comprises an anterior surface, a posterior surface shaped for placement on a cornea of an eye, a lens edge circumscribing the lens body, and the ion-permeable portion is present at a region of the lens body extending at least 1.1 mm from the lens edge towards the geometric center of the lens body.

3. The contact lens of claim 1, wherein the lens body has an average thickness and an ionoflux diffusion coefficient, wherein the average thickness is at least 50 micrometers and the ionoflux diffusion coefficient is at least $6.7x10^{-6}$ mm^2/min.

4. The contact lens of claim 1, wherein the lens body has an average ionoflux transmittance from about $1.34x10^{-4}$ mm/min to about 1.50×10^{-1} mm/min.

5. The contact lens of claim 2, wherein the ion-permeable portion defines an annulus having a radially outer edge defined by the lens edge of the lens body.

6. The contact lens of claim 1, wherein the ion-impermeable portion constitutes less than 75% of the area of the lens body when viewed in plan view.

7. The contact lens of claim 1, wherein the ion-impermeable portion comprises at least one additional electronic component.

8. The contact lens of claim 7, wherein the at least one additional electronic component comprises at least one electrode, at least one power supply, at least one sensor, or at least one transmitter, or combinations thereof.

9. The contact lens of claim 1, wherein the electronically adjustable optic comprises a liquid crystal component, or a fluid filled membrane component.

10. The contact lens of claim 1, wherein the lens body comprises a hydrogel component, a silicone hydrogel component, or a silicone elastomer component, or combinations thereof.

11. The contact lens of claim 1, wherein the ion-impermeable portion has a substantially circular shape when viewed in plan view, and the ion-impermeable portion has a diameter no greater than 12 mm.

12. A contact lens, comprising:

a lens body that comprises an ion-impermeable portion, and an ion-permeable portion,

wherein the ion-impermeable portion comprises an electronically adjustable optic that provides a first refractive power without energy, and adjusts to a different second refractive power upon receiving energy, and at least one additional electronic component to provide the energy to the electronically adjustable optic, and

wherein the ion-permeable portion comprises a hydrogel polymeric material or a silicone hydrogel polymeric material, and the ion-permeable portion is present as an annulus extending radially inwardly from a lens edge circumscribing the lens body by a distance that is at least 7% of a chord diameter of the lens body.

13. The contact lens of claim 12, wherein the electronically adjustable optic comprises a liquid crystal component, or a fluid filled membrane component.

14. The contact lens of claim 12, wherein the annulus of the ion-permeable portion has a radial width of at least 1.1 mm from the lens edge.

15. The contact lens of claim 12, wherein the lens body has an average ionoflux transmittance of at least 1.34×10^{-4} mm/min.

16. The contact lens of claim 12, wherein the ion-impermeable portion further comprises a silicone elastomer material.

17. A contact lens, comprising:

a lens body that comprises an ion-impermeable portion, and an ion-permeable portion, the lens body having an average thickness of at least 200 micrometers, and an ionoflux diffusion coefficient of at least 2.68×10^{-5} mm^2/min.

18. The contact lens of claim 17, wherein the lens body exhibits an on-eye movement rate from 0.1 mm/second to 4.0 mm/second.

19. The contact lens of claim 17, wherein the lens body has an average ionoflux transmittance of at least 1.34×10^{-4} mm/min.

20. The contact lens of claim 17, wherein the lens body further comprises an anterior surface, a posterior surface shaped for placement on a cornea of an eye, a lens edge circumscribing the lens body, and the ion-permeable portion is present at a region of the lens body extending at least 1.1 mm from the lens edge towards the geometric center of the lens body.

21. The contact lens of claim 17, wherein the ion-impermeable portion constitutes no more than 70% of the area of the lens body when viewed in plan view.

22. The contact lens of claim 17, wherein the ion-impermeable portion comprises at least one electronic component.

23. The contact lens of claim 22, wherein the at least one electronic component comprises at least one electrode, at least one power supply, at least one sensor, or at least one transmitter, or combinations thereof.

24. The contact lens of claim 17, wherein the lens body comprises an optic zone that comprises an electronically adjustable optic.

25. The contact lens of claim 24, wherein the electronically adjustable optic comprises a liquid crystal component, or a fluid filled membrane component.

26. The contact lens of claim 17, wherein the lens body comprises a hydrogel component, a silicone hydrogel component, or a silicone elastomer component, or combinations thereof.