WHAT IS CLAIMED IS:

1. A biocompatible energization element comprising

a gap spacer layer;
a first hole located in the gap spacer layer;
a cathode spacer layer, wherein the cathode spacer layer is attached to the gap spacer layer;
a second hole located in the cathode spacer layer, wherein the second hole is aligned to the first hole, and wherein the second hole is smaller than the first hole such that when the first hole and the second hole are aligned there is a ridge of cathode spacer layer exposed in the first hole;
a separator layer, wherein the separator layer is placed within the first hole in the gap spacer layer and is adhered to the ridge of cathode spacer layer;
a cavity between sides of the second hole and a first surface of the separator layer, wherein the cavity is filled with cathode chemicals;
a first current collector coated with anode chemicals;
a second current collector, wherein the second current collector is in electrical connection with the cathode chemicals; and
an electrolyte comprising electrolyte chemicals, wherein the cathode chemicals, anode chemicals and electrolyte chemicals are formulated for a single discharging cycle of the energization element.

2. The biocompatible energization element of claim 1 wherein the cathode chemicals comprise a salt of manganese.

3. The biocompatible energization element of claim 2 wherein the cathode chemicals comprise manganese dioxide.

4. The biocompatible energization element of claim 1 wherein the anode chemicals comprise zinc.

5. The biocompatible energization element of claim 4 wherein the anode chemicals comprise electrodeposited zinc.

6. The biocompatible energization element of claim 1 wherein the cathode chemicals comprise graphite.

7. The biocompatible energization element of claim 1 wherein the cathode chemicals comprise polyisobutylene.

8. The biocompatible energization element of claim 1 wherein the cathode chemicals comprise toluene.

9. The biocompatible energization element of claim 1 wherein the cathode chemicals comprise jet milled electrolytic manganese dioxide.

10. The biocompatible energization element of claim 1 wherein the cathode chemicals comprise KS6 primary synthetic graphite.

11. The biocompatible energization element of claim 10 wherein the cathode chemicals comprise a mixture of approximately 1.7 percent PIB B50, 45 percent JMEMD, 11 percent KS6, and the remainder, Toluene.

12. The biocompatible energization element of claim 1 wherein the electrolyte comprises one or more of zinc chloride and ammonium chloride.

13. The biocompatible energization element of claim 1 wherein the separator comprises Celgard™ 412.

14. The biocompatible energization element of claim 1 wherein the biocompatible energization element is electrically connected to an electroactive element within a biomedical device.

15. The biocompatible energization element of claim 1 wherein the biocompatible energization element is electrically connected to an electroactive element within a biomedical device.

16. The biocompatible energization element of claim 15 wherein the biomedical device is an ophthalmic device.

17. The biocompatible energization element of claim 16 wherein the ophthalmic device is a contact lens.

18. A biocompatible energization element comprising

a cathode spacer layer;
a first hole located in the cathode spacer layer;
a first current collector coated with anode chemicals, wherein the first current collector is attached to a first surface of the cathode spacer layer, and wherein a first cavity is created between sides of the first hole and a first surface of the first current collector coated with anode chemicals;
a separator layer, wherein the separator layer is formed within the first cavity after a separator precursor mixture is dispensed into the cavity;
a second cavity between sides of the first hole and a first surface of the separator layer, wherein the second cavity is filled with cathode chemicals;
a second current collector, wherein the second current collector is in electrical connection with the cathode chemicals; and
an electrolyte comprising electrolyte chemicals,
wherein the cathode chemicals, anode chemicals and electrolyte chemicals are formulated for a single discharging cycle of the energization element.

19. The biocompatible energization element of claim 18 wherein the separator comprises hydroxyethylmethacrylate, ethylene glycol dimethylacrylate and polyvinylpyrrolidone.

20. The biocompatible energization element of claim 19 wherein the cathode chemicals comprise a mixture approximately of 1.5 parts 10 percent PIB B50 in toluene to 2.3 parts additional toluene to 4.9 parts of a mixture comprising approximately 80 percent jet milled electrolytic manganese dioxide to 20 percent KS6 primary synthetic graphite, wherein the anode chemicals comprise electrodeposited zinc, and wherein the electrolyte comprises zinc chloride and ammonium chloride.

21. The biocompatible energization element of claim 20 wherein the biocompatible energization element is electrically connected to an electroactive element within a biomedical device.

22. The biocompatible energization element of claim 21 wherein the biomedical device is an ophthalmic device.

23. The biocompatible energization element of claim 22 wherein the ophthalmic device is a contact lens.

CLAIMS

1. A biocompatible energization element comprising
a gap spacer layer;
a first hole located in the gap spacer layer;
a cathode spacer layer, wherein the cathode spacer layer is attached to the gap spacer layer;
a second hole located in the cathode spacer layer, wherein the second hole is aligned to the first hole, and wherein the second hole is smaller than the first hole such that when the first hole and the second hole are aligned there is a ridge of cathode spacer layer exposed in the first hole;
a separator layer, wherein the separator layer is placed within the first hole in the gap spacer layer and is adhered to the ridge of cathode spacer layer;
a cavity between sides of the second hole and a first surface of the separator layer, wherein the cavity is filled with cathode chemicals;
a first current collector coated with anode chemicals, and attached to a first surface of the cathode spacer layer;
a second current collector, wherein the second current collector is in electrical connection with the cathode chemicals; and
an electrolyte comprising electrolyte chemicals, wherein the cathode chemicals, anode chemicals and electrolyte chemicals are formulated for a single discharging cycle of the energization element.

2. The biocompatible energization element of claim 1 wherein the cathode chemicals comprise a salt of manganese.

3. The biocompatible energization element of claim 2 wherein the cathode chemicals comprise manganese dioxide.

4. The biocompatible energization element of claim 1 wherein the anode chemicals comprise zinc.

5. The biocompatible energization element of claim 4 wherein the anode chemicals comprise

electrodeposited zinc.

6. The biocompatible energization element of claim 1 wherein the cathode chemicals comprise graphite.

7. The biocompatible energization element of claim 1 wherein the cathode chemicals comprise polyisobutylene.

8. The biocompatible energization element of claim 1 wherein the cathode chemicals comprise toluene.

9. The biocompatible energization element of claim 1 wherein the cathode chemicals comprise jet milled electrolytic manganese dioxide.

10. The biocompatible energization element of claim 1 wherein the cathode chemicals comprise synthetic graphite having a particle size in the range of 5.8-7.1 μm.

11. The biocompatible energization element of claim 10 wherein the cathode chemicals comprise a mixture of approximately 1.7 percent polyisobutylene polyisobutylene (PIB) having a molecular weight in the range of 100,000 to 500,000, 45 percent jet-milled electrolytic manganese dioxide (JMEMD), 11 percent synthetic graphite having a particle size in the range of 5.8-7.1 μm, and the remainder, Toluene.

12. The biocompatible energization element of claim 1 wherein the electrolyte comprises one or more of zinc chloride and ammonium chloride.

13. The biocompatible energization element of claim 1 wherein the biocompatible energization element is electrically connected to an electroactive element within a biomedical device.

14. The biocompatible energization element of claim 13 wherein the biomedical device is an ophthalmic device.

15. The biocompatible energization element of claim 14 wherein the ophthalmic device is a contact lens.

16. A biocompatible energization element comprising
a cathode spacer layer;
a first hole located in the cathode spacer layer;
a first current collector coated with anode chemicals, wherein the first current collector is attached to a first surface of the cathode spacer layer, and wherein a first cavity is created between sides of the first hole and a first surface of the first current collector coated with anode chemicals;
a separator layer, wherein the separator layer is formed within the first cavity after a separator precursor mixture is dispensed into the cavity;
a second cavity between sides of the first hole and a first surface of the separator layer, wherein the second cavity is filled with cathode chemicals;
a second current collector, wherein the second current collector is in electrical connection with the cathode chemicals; and
an electrolyte comprising electrolyte chemicals,
wherein the cathode chemicals, anode chemicals and electrolyte chemicals are formulated for a single discharging cycle of the energization element.

17. The biocompatible energization element of claim 16 wherein the separator comprises hydroxyethylmethacrylate, ethylene glycol dimethylacrylate and polyvinylpyrrolidone.

18. The biocompatible energization element of claim 17 wherein the cathode chemicals comprise a mixture approximately of 1.5 parts 10 percent polyisobutylene (PIB) having a molecular weight in the range of 100,000 to 500,000, in toluene to 2.3 parts additional toluene to 4.9 parts of a mixture comprising approximately 80 percent jet milled electrolytic manganese dioxide to 20 percent synthetic graphite having a particle size in the range of 5.8-7.1 μm, wherein the

anode chemicals comprise electrodeposited zinc, and wherein the electrolyte comprises zinc chloride and ammonium chloride.

19. The biocompatible energization element of claim 18 wherein the biocompatible energization element is electrically connected to an electroactive element within a biomedical device.

20. The biocompatible energization element of claim 19 wherein the biomedical device is an ophthalmic device.

21. The biocompatible energization element of claim 20 wherein the ophthalmic device is a contact lens.