Claims:

1. A method of manufacturing an electrochemical cell, the method comprising:

providing a cylindrical electrochemical cell can having an active material ring disposed proximate an interior surface of the cell can;

forming a cylindrical separator comprising a continuous separator sheet defining (a) a closed bottom end and (b) a two-layer cylindrical sidewall, wherein forming the cylindrical separator comprises:

providing the continuous separator sheet;

forming lateral slits perpendicular to a longitudinal axis of the continuous separator sheet to separate a first end and a second end of the continuous separator sheet;

rolling the first end to form a first cylindrical layer having a first seam; and

rolling the second end around an exterior of the first cylindrical layer to form a second cylindrical layer having a second seam;

inserting the cylindrical separator end into the interior of the active material ring;

disposing a second active material within an interior of the separator; and

sealing the electrochemical cell can.

2. The method of manufacturing an electrochemical cell of claim 1, wherein the first seam and the second seam are aligned with a diameter of the cylindrical sidewall.

3. The method of manufacturing an electrochemical cell of claim 1, further comprising positioning a separator reinforcement layer adjacent the closed bottom end of the cylindrical separator.

4. The method of manufacturing an electrochemical cell of claim 3, wherein positioning a separator reinforcement layer adjacent the closed bottom end comprises positioning a reinforcing cup adjacent a bottom exterior surface of the closed bottom end.

5. An electrochemical cell comprising:

a container;

a ring-shaped cathode disposed within the container wherein the cathode includes an exterior surface in contact with the container and an interior surface surrounding a hollow interior;

an anode disposed within the hollow interior of the cathode; and

a cylindrical separator positioned between the cathode and the anode, wherein the cylindrical separator comprises a continuous separator sheet defining (a) a closed bottom end, (b) a two-layer cylindrical sidewall defining a seam within each layer of the two-layer cylindrical sidewall, and (c) lateral slits perpendicular to a longitudinal axis of the continuous separator sheet, wherein the lateral slits separate a first end and a second end of the continuous separator sheet; and

wherein the two-layer cylindrical sidewall comprises:

a first cylindrical layer formed by the first end of the continuous separator sheet; and

a second cylindrical layer formed by the second end of the continuous separator sheet, wherein the second end of the continuous separator sheet is formed around an exterior surface of the first cylindrical layer of the two-layer cylindrical sidewall.

6. The electrochemical cell of claim 5, wherein the seams comprise a first seam within the first cylindrical layer and a second seam within the second cylindrical layer and wherein the first seam and the second seam are aligned with a diameter of the two-layer cylindrical sidewall.

7. The electrochemical cell of claim 6, wherein:

the first end of the continuous separator sheet is rolled into the first cylindrical layer such that opposing longitudinal edges of the first end of the continuous separator sheet meet at the first seam; and

the second end of the continuous separator sheet is rolled around the first cylindrical layer such that opposing longitudinal edges of the second end of the continuous separator sheet meet at the second seam.

8. The electrochemical cell of claim 6, wherein the first seam is defined by overlapping portions of the first end of the continuous separator sheet and the second seam is defined by overlapping portions of the second end of the continuous separator sheet.

9. The electrochemical cell of claim 6, wherein the first seam is defined by abutted edges of the first end of the continuous separator sheet and the second seam is defined by abutted edges of the second end of the continuous separator sheet.

10. The electrochemical cell of claim 5, wherein the first end is longer than the second end of the continuous separator sheet.

11. The electrochemical cell of claim 10, wherein the length of each of the first end and the second end is greater than the height of the ring-shaped cathode.

12. The electrochemical cell of claim 11, wherein the length of the first end is longer than the combination of the height of the ring-shaped cathode and a diameter of the hollow interior of the ring-shaped cathode.

13. The electrochemical cell of claim 5, further comprising positioning a separator reinforcement layer adjacent the closed bottom end of the cylindrical separator.

14. The electrochemical cell of claim 13, wherein the separator reinforcement layer comprises one of a reinforcing cup or a reinforcing pad.

15. The electrochemical cell of claim 5, wherein the continuous separator sheet comprises 3 mil separator paper.

16. The method of manufacturing an electrochemical cell of claim 1, wherein rolling the second end around an exterior of the first cylindrical layer comprises forming the closed bottom end with a portion of the second end.