CLAIMS

1. A process of preparing a plurality of lithium aluminum ingots comprising:

(a) preparing a master alloy comprising about 70 to 90 percent by weight lithium and 10 to 30 percent by weight aluminum and

(b) dissolving the master alloy of step (a) in lithium at a temperature of from about 230° C. to 360° C. to provide a uniform alloy composition,

(c) producing a plurality of lithium aluminum ingots from the uniform alloy composition wherein each lithium aluminum ingot has between about 1500 to 2500 ppm by weight aluminum.

2. The process of claim 1, wherein preparing the master alloy comprises melting the aluminum and adding lithium.

3. The process of claim 2 further comprising mixing the lithium and the aluminum to produce a homogenous mixture.

4. The process of claim 1, wherein the master alloy of step (a) has a melting point temperature between about 185° C. and about 330° C.

5. The process of claim 4, wherein the master alloy of step (a) has a melting point temperature between about 200° C. and about 300° C.

6. The process of claim 5, wherein the master alloy of step (a) has a melting point temperature between about 240° C. and about 260° C.

7. The process of claim 1, wherein the lithium aluminum ingot of step (c) is homogenous.

8. The process of claim 7, wherein dissolving the master alloy of step (a) in lithium further comprises cooling the master alloy and lithium at a rate selected to form the uniform alloy composition.

9. The process of claim 8, wherein the master alloy and lithium are cooled at a rate between about 1° C./min and 100° C./min.

10. The process of claim 7 further comprising agitating the master alloy of step (a) in lithium to form a uniform alloy composition.

11. The process of claim 1, wherein dissolving the master alloy of step (a) in lithium comprises heating the master alloy in lithium at the temperature of from about 230° C. to 330° C. for a duration between about 0.5 hours and about 8 hours.

12. The process of claim 1, wherein dissolving the master alloy in lithium comprises adding the master alloy to the lithium at a rate of at least about 1 g/min.

13. The process of claim 1, wherein each lithium aluminum ingot from the plurality of lithium aluminum ingots has between about 1900 to 2100 ppm by weight aluminum.

14. The process of claim 13, wherein each lithium aluminum ingot from the plurality of lithium aluminum ingots has between about 1950 to 2050 ppm by weight aluminum.

15. The process of claim 1, wherein the plurality of lithium aluminum ingots has a variance in aluminum content of about 20 percent or less between each lithium aluminum ingot.

16. The process of claim 15, wherein the plurality of lithium aluminum ingots has a variance in aluminum content of about 5 percent or less between each lithium aluminum ingot.

17. A process of preparing a lithium aluminum ingot having an aluminum content by weight of about 0.001 to 1.0 percent:

(a) preparing a master alloy comprising about 70 to 90 percent by weight lithium and 10 to 30 percent by weight aluminum and

(b) dissolving the master alloy of step (a) in lithium at a temperature of from about 230° C. to 330° C. to provide a lithium aluminum ingot having about 0.001 to about 1.0 percent aluminum.

18. The process of claim 17, wherein preparing the master alloy comprises melting the aluminum and adding lithium.

19. The process of claim 18 further comprising mixing the lithium and the aluminum to produce a homogenous mixture.

20. The process of claim 17, wherein the master alloy of step (a) has a melting point temperature between about 185° C. and about 330° C.

21. The process of claim 20, wherein the master alloy of step (a) has a melting point temperature between about 200° C. and about 300° C.

22. The process of claim 21, wherein the master alloy of step (a) has a melting point temperature between about 240° C. and about 260° C.

23. The process of claim 17, wherein the lithium aluminum ingot of step (b) has a uniform composition.

24. The process of claim 23, wherein dissolving the master alloy of step (a) in lithium further comprises cooling the master alloy and lithium at a rate selected to form the uniform alloy composition.

25. The process of claim 24, wherein the master alloy and lithium are cooled at a rate between about 1° C./min and 100° C./min.

26. The process of claim 23 further comprising agitating the master alloy of step (a) in lithium to form the uniform alloy composition.

27. The process of claim 17, wherein dissolving the master alloy of step (a) in lithium comprises heating the master alloy in lithium at the temperature of from about 230° C. to 330° C. for a duration between about 0.5 hours and about 8 hours.

28. The process of claim 17, wherein dissolving the master alloy in lithium comprises adding the master alloy to the lithium at a rate of at least about 1 g/min.