CLAIMS

1. A metallic non-magnetic lid for sealing a hermetic package comprising:

   a substrate consisting of molybdenum;

   an adhesion layer on the substrate;

   a copper seed layer on the adhesion layer;

   a palladium solder base layer; and

   a gold/tin solder preform attached at a sealing surface of the lid.

2. The non-magnetic lid of claim 1 wherein the gold/tin solder preform is configured to flow during a seam-sealing operation.

3. The non-magnetic lid of claim 2 wherein the substrate received at least one of chemical etching, mechanical etching, or back-sputtering prior to sputtering the adhesion layer.

4. The non-magnetic lid of claim 1 wherein the solder base layer is plated between about 10,000 angstrom to about 2 μm thick.

5. The non-magnetic lid of claim 1 wherein the solder base layer is at least about 1 micron thick.

6. The non-magnetic lid of claim 5 wherein the solder base layer is no more than about 6 micron thick.

7. The non-magnetic lid of claim 1 further comprising over the solder base layer an electroplated gold coating to about 1000 angstrom-2 μm thick.

8. The non-magnetic lid of claim 1 wherein the palladium coated lid was vacuum baked prior to attaching the gold/tin preform.

9. The non-magnetic lid of claim 8 wherein the lid was vacuum baked to achieve less than about 6 ppm H concentration in the palladium solder base layer.

10. The non-magnetic lid of claim 1 having at its outside edges a corner radius of about 30 mil.

11. The non-magnetic lid of claim 1 wherein the adhesion layer is at least about 500 angstrom thick.

12. The non-magnetic lid of claim 1 wherein the adhesion layer is about 2000 angstrom thick.

13. The non-magnetic lid of claim 1 wherein the seed layer is at least about 1000 angstrom thick.

14. The non-magnetic lid of claim 1 wherein the seed layer is about 2000 angstrom thick.

15. The non-magnetic lid of claim 14 wherein the seed layer is no more than about 6000 angstrom thick.

16. The non-magnetic lid of claim 1 wherein the adhesion layer includes one or more materials selected from the group consisting of: titanium, tantalum, or chromium.

17. The non-magnetic lid of claim 1 wherein the adhesion layer comprises sputtered titanium.

18. The non-magnetic lid of claim 1 wherein the adhesion layer, the seed layer, and the solder base layer cover at least a sealing surface of the substrate and an edge of the substrate that bounds the sealing surface.

19. The non-magnetic lid of claim 18, wherein the adhesion layer, the seed layer, and the solder base layer uniformly cover the substrate.

20. A metallic, seam-sealable non-magnetic lid for sealing a hermetic package comprising:

    a substrate consisting of molybdenum;

    an adhesion layer deposited onto at least one surface of the substrate;

    a copper seed layer deposited onto the adhesion layer;

    a palladium solder base layer deposited onto the copper seed layer; and

    a gold/tin solder preform attached to the palladium solder base layer at a sealing surface of the lid.

21. The non-magnetic lid of claim 1 wherein the adhesion layer is sputtered onto the substrate between the substrate and the copper seed layer;

    wherein the copper seed layer is sputtered onto the adhesion layer between the adhesion layer and the palladium solder base layer; and

    wherein the palladium solder base layer is electroplated onto the copper seed layer to form the sealing surface of the non-magnetic lid.

22. The non-magnetic lid of claim 1 wherein the substrate comprises a thermal resistivity and an electrical resistivity that facilitates a seam sealing process.

23. The non-magnetic lid of claim 1 wherein the substrate has one of a concave shape and a stepped shape.

24. The non-magnetic lid of claim 1 further comprising a gold strike layer electroplated between the copper seed layer and the solder base layer.

25. The non-magnetic lid of claim 20 wherein each of the adhesion layer, the copper seed layer, and the palladium solder base layer comprises a conformal coating.

26. The non-magnetic lid of claim 20 wherein the substrate has a resistivity and conductivity combination allowing the non-magnetic lid to be seam sealable.

27. The non-magnetic lid of claim 20 further comprising a gold strike layer positioned between the copper seed layer and the palladium solder base layer.

28. The non-magnetic lid of claim 20 wherein the substrate has one of a concave shape and a stepped shape.

29. The non-magnetic lid of claim 20 wherein the adhesion layer is one of a physical vapor deposited adhesion layer and a sputtered adhesion layer.