CLAIMS

1. A gas distribution showerhead, comprising:

a body that comprises an upper surface, a lower surface, an inner zone, and an outer zone, wherein the outer zone surrounds the inner zone;

a first plenum within the inner zone, wherein the first plenum is coupled to a first inlet port over the upper surface; and

a second plenum within the outer zone, wherein the second plenum is coupled to a second inlet port over the upper surface,

wherein the first plenum is coupled to a first plurality of apertures, wherein the first plurality of apertures is within a central portion of the lower surface, wherein the second plenum is coupled to a second plurality of apertures, and wherein the second plurality of apertures is within a peripheral portion of the lower surface.

2. The gas distribution showerhead of claim 1, wherein the first plenum comprises a first chamber within the inner zone, and wherein the second plenum comprises a second chamber within the outer zone.

3. The gas distribution showerhead of claim 2, further comprising a third plenum within the inner zone, wherein the third plenum is coupled to a third inlet port and to a third plurality of apertures.

4. The gas distribution showerhead of claim 3, wherein the third plurality of apertures is within the central portion of the lower surface.

5. The gas distribution showerhead of claim 4, further comprising a fourth plenum within the outer zone, wherein the fourth plenum is coupled to a fourth inlet port and to a fourth plurality of apertures.

6. The gas distribution showerhead of claim 5, wherein the fourth plurality of apertures is within the peripheral portion of the lower surface.

7. The gas distribution showerhead of claim 6, wherein the first plenum comprises a first plurality of channels within the inner zone, and wherein the second plenum comprises a second plurality of channels within the outer zone.

8. The gas distribution showerhead of claim 7, wherein individual ones of the first plurality of channels are substantially parallel to one another, and wherein individual ones of the second plurality of channels are substantially parallel to one another.

9. The gas distribution showerhead of claim 8, wherein the third plenum comprises a third plurality of channels within the inner zone.

10. The gas distribution showerhead of claim 9, wherein individual ones of the third plurality of channels are substantially parallel to one another.

11. The gas distribution showerhead of claim 10, wherein the individual ones of the first plurality of channels are substantially coplanar with the individual ones of the third plurality of channels.

12. The gas distribution showerhead of claim 10, wherein the individual ones of the first plurality of channels are substantially non-coplanar with the individual ones of the third plurality of channels.

13. The gas distribution showerhead of claim 12, wherein the individual ones of the first plurality of channels are substantially coplanar within a first plane within the inner zone, wherein the individual ones of the third plurality of channels are substantially coplanar within a second plane within the inner zone, and wherein the first plane is above the second plane.

14. The gas distribution showerhead of claim 13, wherein the individual ones of the first plurality of channels are substantially parallel to the individual ones of the third plurality of channels.

15. The gas distribution showerhead of claim 13, wherein the individual ones of the first plurality of channels are substantially orthogonal to the individual ones of the third plurality of channels.

16. The gas distribution showerhead of claim 9, wherein the fourth plenum comprises a fourth plurality of channels within the outer zone.

17. The gas distribution showerhead of claim 16, wherein individual ones of the fourth plurality of channels are substantially parallel to one another.

18. The gas distribution showerhead of claim 17, wherein the individual ones of the second plurality of channels are substantially coplanar with the individual ones of the fourth plurality of channels.

19. The gas distribution showerhead of claim 17, wherein the individual ones of the second plurality of channels are substantially non-coplanar with the individual ones of the fourth plurality of channels.

20. The gas distribution showerhead of claim 19, wherein the individual ones of the second plurality of channels are substantially coplanar within a third plane within the outer zone, wherein the individual ones of the fourth plurality of channels are substantially coplanar within a fourth plane within the outer zone, and wherein the third plane is above the fourth plane.

21. The gas distribution showerhead of claim 20, wherein the individual ones of the second plurality of channels are substantially parallel to the individual ones of the fourth plurality of channels.

22. The gas distribution showerhead of claim 20, wherein the individual ones of the second plurality of channels are substantially orthogonal to the individual ones of the fourth plurality of channels.

23. A system, comprising:

a process tool that comprises a vacuum chamber; and

a gas distribution showerhead within the vacuum chamber, wherein the gas distribution showerhead is a gas distribution showerhead according to any one of claims 1 to 22.

24. A method for using a gas distribution showerhead, comprising:

flowing a first process gas from a first process gas source coupled to a first plenum of the gas distribution showerhead;

flowing a second process gas from a second process gas source coupled to a second plenum of the gas distribution showerhead;

tuning a first flow rate of the first process gas through the first plenum of the gas distribution showerhead; and

tuning a second flow rate of the second process gas through the second plenum of the gas distribution showerhead, wherein the gas distribution showerhead comprises

a body that comprises an upper surface, a lower surface, an inner zone; and an outer zone, wherein the outer zone surrounds the inner zone;

wherein the first plenum is within the inner zone, wherein the first plenum is coupled to a first inlet port over the upper surface; and

wherein the second plenum is within the outer zone, wherein the second plenum is coupled to a second inlet port over the upper surface,

wherein the first plenum is coupled to a first plurality of apertures, wherein the first plurality of apertures is within a central portion of the lower surface, wherein the second plenum is coupled to a second plurality of apertures, and wherein the second plurality of apertures is within a peripheral portion of the lower surface.

25. The method of claim 24, wherein the first process gas is substantially identical to the second process gas.

26. The method of claim 25, further comprising flowing a third process gas from a third process gas source coupled to a third plenum, wherein the third plenum is adjacent to the first plenum within the inner zone.

27. The method of claim 26, further comprising flowing a fourth process gas from a fourth process gas source coupled to a fourth plenum, wherein the fourth plenum is adjacent to the second plenum within the outer zone.

28. The method of claim 27, wherein the third process gas is substantially identical to the fourth process gas, wherein the first process gas source is coupled to the first plenum and the second plenum, and wherein the second process gas source is coupled to the third plenum and the fourth plenum.

29. The method of claim 28, wherein flowing the first process gas from the first process gas source comprises flowing the first process gas through the first plenum and the second plenum, and wherein flowing the second process gas from the second process gas source comprises flowing the second process gas through the third plenum and the fourth plenum.