

CLAIMS:

1. An apparatus for treating a workpiece with plasma, the apparatus comprising:
 - a chamber partially defining a processing space for receiving process gas, wherein the chamber is under vacuum during treatment of the workpiece with plasma;
 - a base assembly defining a lower end of the processing space, wherein the base assembly comprises a workpiece holder having a perimeter and configured to receive the workpiece, a baffle plate having an outer perimeter, an electrode coupled to the baffle plate and having a sidewall, and a chamber base surrounding an outer surface of the sidewall of the electrode, and wherein a majority of the outer perimeter of the baffle plate is proximate to, but not in direct contact with, an inner surface of the sidewall of the electrode;
 - a process gas supply port in the chamber for introducing the process gas to the processing space; and
 - a plasma excitation source operable to provide a plasma in the processing space from the process gas for treating the workpiece,
 - the majority of the outer perimeter of the baffle plate and the inner surface of the sidewall of the electrode being arranged to define a gap for evacuating said processing space during treatment of the workpiece with plasma.
2. The apparatus of claim 1, wherein the base assembly defines a flow path via which said processing space is evacuated from the base assembly.
3. The apparatus of claim 2, wherein the flow path comprises a first vertical portion vertically offset from a second vertical portion.
4. The apparatus of claim 3, wherein the first vertical portion is defined by a first vertical passage and the second vertical portion is defined by a second vertical passage, the second vertical passage being vertically offset from the first vertical passage.
5. The apparatus of claim 4, wherein the plasma excitation source comprises the electrode and the electrode is positioned vertically between the chamber base and the baffle plate in the

base assembly, and wherein the first vertical passage is defined by the electrode and the second vertical passage is defined by the chamber base.

6. The apparatus of claim 5, wherein the baffle plate and the electrode are coupled and define an interior space between the baffle plate and the electrode, and wherein the interior space between the baffle plate and the electrode defines a portion of the flow path immediately subsequent to evacuation of said processing space.

7. The apparatus of claim 6, wherein the portion of the flow path defined by the interior space between the baffle plate and the electrode comprises a first lateral portion prior to the first vertical passage defined by the electrode.

8. The apparatus of claim 7, wherein the electrode is coupled to the chamber base and the first vertical passage passes to the chamber base.

9. The apparatus of claim 8, wherein the chamber base defines a circular channel configured to define a second lateral portion of the flow path subsequent to the first vertical passage.

10. The apparatus of claim 9, wherein a lateral direction of the first lateral portion of the flow path and a lateral direction of the second lateral portion of the flow path are substantially opposite one another.

11. The apparatus of claim 9, wherein the second vertical passage is defined by a floor of the circular channel of the chamber base.

12. The apparatus of claim 11, wherein a vacuum plate is coupled to a bottom end of the chamber base, the coupled chamber base and the vacuum plate defining a vacuum space configured with a vacuum port connected to a vacuum source.

13. The apparatus of claim 12, wherein the vacuum space defines a third lateral portion of the flow path, wherein the third lateral portion of the flow path extends laterally from a periphery of the vacuum space and the vacuum port.

14. The apparatus of claim 5, wherein the electrode defines two or more vertical passages and the chamber base defines two or more vertical passages, the two or more vertical passages defined by the electrode being vertically offset from each of the two or more vertical passages defined by the chamber base.

15. The apparatus of claim 14, wherein the two or more vertical passages defined by the electrode comprises four vertical passages and the two or more vertical passages defined by the chamber base comprises four vertical passages, the four vertical passages defined by the electrode being vertically offset from each of the four vertical passages defined by the chamber base by at least 30 degrees relative to a center of at least one of the electrode and the chamber base.

16. The apparatus of claim 15, wherein the four vertical passages defined by the electrode are vertically offset from each of the four vertical passages defined by the chamber base by 45 degrees relative to the center of the at least one of the electrode and the chamber base.

17. The apparatus of claim 2, wherein a first portion of the flow path is defined by the gap and a second portion of the flow path comprises a horizontal portion immediately subsequent to the first portion of the flow path.

18. The apparatus of claim 17, wherein the horizontal portion of the flow path is defined between at least a portion of the baffle plate and at least a portion of the electrode.

19. The apparatus of claim 17, wherein a third, vertical portion of the flow path is defined by a vacuum conduit leading from a vacuum space in the base assembly.

20. The apparatus of claim 1, wherein an entirety of the outer perimeter of the baffle plate is proximate to, but not in direct contact with, the inner surface of the sidewall of the electrode.