CLAIMS:

1. A reaction apparatus for contacting a process gas with a semiconductor wafer, the reaction apparatus comprising:

an upper dome;

a lower dome attached to the upper dome, the upper dome and the lower dome defining a reaction chamber;

an upper liner;

a lower liner positioned below the upper liner, the upper liner and the lower liner defining a process gas inlet for channeling the process gas into the reaction chamber; and

a preheat ring positioned within the reaction chamber for heating the process gas prior to contacting the semiconductor wafer, the preheat ring attached to an inner circumference of the lower liner, the preheat ring comprising:

an annular disk having an inner edge, an outer edge, a first side, and a second side opposite the first side, the inner edge and the outer edge defining a radial distance therebetween; and

an edge bar positioned on the first side and extending from the outer edge toward the inner edge an edge bar radial thickness, wherein the radial distance of the annular disk is greater than the edge bar radial thickness,

wherein the edge bar has an edge bar height and an edge bar circumferential length, wherein the edge bar height and the edge bar circumferential

length are each configured to adjust a velocity and/or a direction of the process gas.

2. The reaction apparatus of claim 1, wherein the process gas inlet includes a first inlet segment that directs process gas to an edge of the semiconductor wafer, a second inlet segment that directs process gas to a center region of the semiconductor wafer, a third inlet segment that directs process gas to the center region of the semiconductor wafer, and a fourth inlet segment that directs process gas to the edge of the semiconductor wafer.

3. The reaction apparatus of claim 2, wherein the edge bar is positioned proximate at least one of the first inlet segment and the fourth inlet segment.

4. The reaction apparatus of claim 2, wherein the edge bar includes a first edge bar and a second edge bar, wherein the first edge bar is positioned proximate the first inlet segment and the second edge bar is positioned proximate the fourth inlet segment.

5. The reaction apparatus of claim 4, wherein the first edge bar and the second edge bar adjust a velocity and a direction of the process gas directed to the edge of the semiconductor wafer.

6. The reaction apparatus of claim 2, wherein the edge bar is positioned proximate at least one of the second inlet segment and the third inlet segment.

7. The reaction apparatus of claim 2, wherein the edge bar is positioned proximate the second inlet segment and the third inlet segment.

8. The reaction apparatus of claim 7, wherein the edge bar adjusts a velocity and a direction of the process gas directed to the center region of the semiconductor wafer.

9. A preheat ring positioned within a reaction apparatus for heating a process gas prior to contacting a semiconductor wafer during a wafering process, the preheat ring comprising:

an annular disk having an inner edge, an outer edge, a first side, and a second side opposite the first side, the inner edge and the outer edge defining a radial distance therebetween; and

an edge bar positioned on the first side and extending from the outer edge toward the inner edge an edge bar radial thickness, wherein the radial distance of the annular disk is greater than the edge bar radial thickness,

wherein the edge bar has an edge bar height and an edge bar circumferential length, wherein the edge bar height and the edge bar circumferential length are each configured to adjust a velocity and/or a direction of the process gas.

10. The preheat ring of claim 9, wherein the annular disk and the edge bar are generally opaque to absorb radiant heating light produced by high intensity lamps.

11. The preheat ring of claim 9, wherein the wafering process is epitaxial chemical vapor deposition.

12. The preheat ring of claim 9, wherein the edge bar includes a rounded protrusion extending from the first side.

13. The preheat ring of claim 9, wherein the edge bar is made of opaque graphite coated with silicon carbide.

14. A method of manufacturing a semiconductor wafer in a reaction apparatus, the reaction apparatus including an upper dome and a lower dome defining a reaction chamber and an upper liner and a lower liner defining a process gas inlet, the reaction apparatus further including a preheat ring positioned within the reaction chamber for heating the process gas prior to contacting the semiconductor wafer, the preheating ring attached to an inner circumference of the lower liner, the preheat ring including an annular disk having an inner edge, an outer edge, a first side, and a second side opposite the first side, the inner edge and the outer edge defining a radial distance therebetween, and an edge bar positioned on the first side of the annular disk and extending from the outer edge toward the inner edge an edge bar radial thickness, wherein the radial distance of the annular disk is greater than the edge bar radial thickness, the method comprising:

channeling a process gas into the reaction chamber through the process gas inlet;

heating the process gas with the preheat ring;

adjusting at least one of a velocity and a direction of the process gas with the edge bar; and

depositing a layer on the semiconductor wafer with the process gas, wherein the edge bar facilitates forming a uniform thickness of the layer on the semiconductor wafer.

15. The method of claim 14, wherein the step of depositing is performed by epitaxial chemical vapor deposition.

16. The method of claim 14, further comprising rotating the semiconductor wafer with respect to the reaction apparatus.

17. The reaction apparatus of claim 4, wherein the first edge bar is positioned on the first side proximate the outer edge and downstream from the first inlet segment, the first edge bar extending radially from the outer edge toward the inner edge a first edge bar radial thickness, wherein the radial distance is greater than the first edge bar radial thickness, the first edge bar extending a circumferential length to form an arc segment and having a first edge bar height; and

wherein the second edge bar is positioned proximate downstream from the fourth inlet segment, and

wherein the first and second edge bars are spaced circumferentially from one another to allow the process gas to flow therebetween from the second and third inlet segments to the center region of the semiconductor wafer.