

What is claimed is:

1. An upper electrode assembly, comprising a gas intake structure provided with a first channel, and an upper electrode plate provided with a second channel, wherein the first channel is configured to introduce a process gas into the second channel, and the second channel is configured to introduce the process gas into a reaction chamber; and wherein the upper electrode assembly further comprises a gas intake isolation assembly disposed between the upper electrode plate and the gas intake structure and configured to electrically isolate an inner wall of the first channel from an inner wall of the second channel while introducing the process gas from the first channel into the second channel;

the gas intake isolation assembly comprises:

an insulation member disposed between the upper electrode plate and the gas intake structure and configured to electrically isolate the upper electrode plate from the gas intake structure; wherein a middle channel is disposed in the insulation member, and is communicated with the first channel and the second channel respectively; and

a gas intake isolation structure disposed in the middle channel and configured to electrically isolate the inner wall of the first channel from the inner wall of the second channel; and

the gas intake isolation structure comprises two or more gas intake hole groups which are different in inclination angles of gas intake holes; each gas intake hole group comprises at least one gas intake hole~~at least one gas intake hole~~, and axes of the gas intake holes in the gas intake hole groups are parallel to an axis of the middle channel; or a preset angle is formed between an axis of the gas intake hole in one of at least two gas intake hole groups and the axis of the middle channel~~an axis of the gas intake hole is parallel to an axis of the middle channel; or a preset angle is formed between the axis of the gas intake hole and the axis of the middle channel~~.

2. The upper electrode assembly of claim 1, wherein a plurality of gas intake holes are provided, and the plurality of gas intake holes are distributed on at least one circumference taking the axis of the middle channel as a center; or the plurality of gas intake holes are arranged in an array relative to a radial section of the middle channel.

3. The upper electrode assembly of claim 1, wherein ~~the gas intake isolation structure comprises at least two gas intake hole groups, each comprising at least one gas intake hole; axes of gas intake holes in the gas intake hole groups are parallel to an axis of the middle~~

~~channel; or a preset angle is formed between an axis of the gas intake hole in one of at least two gas intake hole groups and the axis of the middle channel; and/or the gas intake holes in different gas intake hole groups have different radial section shapes.~~

4. The upper electrode assembly of claim 3, wherein the gas intake isolation structure comprises two gas intake hole groups, which are a first gas intake hole group and a second gas intake hole group, wherein,

the first gas intake hole group comprises a plurality of gas intake holes distributed on at least two first circumferences which take the axis of the middle channel as a center and have different radii; and each gas intake hole in the first gas intake hole group is a circular through hole; and

the second gas intake hole group comprises a plurality of gas intake holes distributed on a second circumference taking the axis of the middle channel as a center; and each gas intake hole in the second gas intake hole group is a rectangular through hole, and a length of a radial section shape of the rectangular through hole is arranged along a radial direction of the second circumference.

5. The upper electrode assembly of claim 4, wherein the larger the radius of the first circumference where the gas intake holes in the first gas intake hole group are located, the larger the diameters of those gas intake holes.

6. The upper electrode assembly of claim 1, wherein the preset angle ranges from 30° to 89°.

7. The upper electrode assembly of claim 3, wherein the preset angle ranges from 30° to 89°.

8. The upper electrode assembly of claim 1, wherein the gas intake hole is a circular through hole; and a diameter of the circular through hole ranges from 0.5mm to 4mm.

9. The upper electrode assembly of claim 4, wherein a diameter of the circular through hole ranges from 0.5mm to 4mm.

10. The upper electrode assembly of claim 4, wherein an area of a radial section of the

rectangular through hole ranges from 1mm^2 to 20mm^2 .

11. The upper electrode assembly of claim 1, wherein the upper electrode plate is a shower plate provided with a spraying hole, and the axis of the gas intake hole and an axis of the spraying hole are staggered.

12. The upper electrode assembly of claim 3, wherein the upper electrode plate is a shower plate provided with a spraying hole, and the axes of the gas intake holes and an axis of the spraying hole are staggered.

13. A reaction chamber, comprising the upper electrode assembly of any one of claims 1 to 12.

14. An atomic layer deposition device, comprising the reaction chamber of claim 13.