CLAIMS

1. Heating element (10) comprising a heating body (20) which is directly covered at least partly with a porous sintered coating (30), wherein the heating body (20) and the porous sintered coating (30) each comprises at least 90 % by weight of tungsten.

2. Heating element (10) according to claim 1, characterized in that the heating body (20) is substantially of flat dimensions.

3. Heating element (10) according to claim 1 or 2, characterized in that the porous sintered coating (30) is at least partly metallurgically bonded to the heating body (20).

4. Heating element (10) according to any of claims 1 to 3, characterized in that the heating body (20) further comprises two opposite side faces (22a, 22b) which are both covered at least partly with the porous sintered coating (30).

5. Heating element (10) according to any of claims 1 to 4, characterized in that the porous sintered coating (30) comprises open pores (32) on the outer surface, wherein the open pores (32) have a projection area that extends over more than 10% of the surface area of the heating body (20) covered by the porous sintered coating (30).

6. Heating element (10) according to claim 5, characterized in that the open pores (32) have a projection area that extends over more than 20% of the surface area of the heating body (20) covered by the porous sintered coating (30).

7. Heating element (10) according to claim 5, characterized in that the open pores (32) have a projection area that extends over more than 30% of the

surface area of the heating body (20) covered by the porous sintered coating (30).

8. Heating element (10) according to any of claims 5 to 7, characterized in that the open pores (32) have a projection area that extends over less than 70% of the surface area of the heating body (20) covered by the porous sintered coating (30).

9. Heating element (10) according to any of claims 5 to 8, characterized in that the open pores (32) have a projection area that extends over less than 60% of the surface area of the heating body (20) covered by the porous sintered coating (30).

10. Heating element (10) according to any of claims 1 to 9, characterized in that the porous sintered coating (30) is made of technical pure tungsten.

11. Heating element (10) according to any of claims 1 to 10, characterized in that the heating body (20) is at least partly curved within a single flat plane.

12. Heating element (10) according to any of claims 1 to 11, characterized in that the emissivity of the porous sintered coating (30) is greater than or equal to 0.5.

13. Reactor comprising a chamber; a susceptor onto which one or more wafers are mounted; and the heating element (10) according to any of claims 1 to 12.

14. Method for manufacturing a heating element (10), comprising the following steps:

- Providing a heating body (20) extending substantially within a single plane and which is made of a material comprising at least 90 % by weight of tungsten;

- Applying at least partly on a surface of the heating body a suspension comprising particles of a material which is at least 90 % by weight of tungsten; and
- Sintering the suspension on the heating body surface to a porous sintered coating (30).

15. Method according to claim 14, characterized in that the suspension is dried before the sintering step.

16. Method according to claim 14 ,characterized in that the suspension is dried during the sintering step.

17. Method according to any of claims 14 to 16, characterized in that the step of sintering is carried out at a temperature below the full sinter temperature of tungsten.

18. Method according to claim 17, characterized in that the sintering step is carried out at a temperature below 1800° Celsius.

19. Method according to any of claims 14 to 18, characterized in that the sintering step is carried out at a temperature between 1400°C and 1500°C.

20. Method according to any of claims 14 to 19, characterized in that the sintering step is carried out under exclusion of air oxygen.

21. Method according to any of claims 14 to 20, characterized in that the sintering step is carried out in a hydrogen atmosphere or an argon atmosphere.

22. Heating body (10) made according to the method of any of claims 14 to 21 having an emissivity greater than or equal to 0.5.

CLAIMS

1. Heating element (10) comprising a heating body (20) which is directly covered at least partly with a porous sintered coating (30), wherein the heating body (20) and the porous sintered coating (30) each comprises at least 90 % by weight of tungsten, characterized in that the porous sintered coating (30) is at least partly metallurgically bonded to the heating body (20).

2. Heating element (10) according to claim 1, characterized in that the heating body (20) is substantially of flat dimensions.

3. Heating element (10) according to claim 1 or 2, characterized in that the heating body (20) further comprises two opposite side faces (22a, 22b) which are both covered at least partly with the porous sintered coating (30).

4. Heating element (10) according to any of claims 1 to 3, characterized in that the porous sintered coating (30) comprises open pores (32) on the outer surface, wherein the open pores (32) have a projection area that extends over more than 10% of the surface area of the heating body (20) covered by the porous sintered coating (30).

5. Heating element (10) according to claim 4, characterized in that the open pores (32) have a projection area that extends over more than 20% of the surface area of the heating body (20) covered by the porous sintered coating (30).

6. Heating element (10) according to claim 4, characterized in that the open pores (32) have a projection area that extends over more than 30% of the surface area of the heating body (20) covered by the porous sintered coating (30).

7. Heating element (10) according to any of claims 4 to 6, characterized in that the open pores (32) have a projection area that extends over less than 70% of the surface area of the heating body (20) covered by the porous sintered coating (30).

8. Heating element (10) according to any of claims 4 to 7, characterized in that the open pores (32) have a projection area that extends over less than 60% of the surface area of the heating body (20) covered by the porous sintered coating (30).

9. Heating element (10) according to any of claims 1 to 8, characterized in that the porous sintered coating (30) is made of technical pure tungsten.

10. Heating element (10) according to any of claims 1 to 9, characterized in that the heating body (20) is at least partly curved within a single flat plane.

11. Heating element (10) according to any of claims 1 to 10, characterized in that the emissivity of the porous sintered coating (30) is greater than or equal to 0.5.

12. Reactor comprising a chamber; a susceptor onto which one or more wafers are mounted; and the heating element (10) according to any of claims 1 to 11.

13. Method for manufacturing a heating element (10), comprising the following steps:

- Providing a heating body (20) extending substantially within a single plane and which is made of a material comprising at least 90 % by weight of tungsten;
- Applying at least partly on a surface of the heating body a suspension comprising particles of a material which is at least 90 % by weight of tungsten; and

- Sintering the suspension on the heating body surface to a porous sintered coating (30).

14. Method according to claim 13, characterized in that the suspension is dried before the sintering step.

15. Method according to claim 13, characterized in that the suspension is dried during the sintering step.

16. Method according to any of claims 13 to 15, characterized in that the step of sintering is carried out at a temperature below the full sinter temperature of tungsten.

17. Method according to claim 16, characterized in that the sintering step is carried out at a temperature below 1800° Celsius.

18. Method according to any of claims 13 to 17, characterized in that the sintering step is carried out at a temperature between 1400°C and 1500°C.

19. Method according to any of claims 13 to 18, characterized in that the sintering step is carried out under exclusion of air oxygen.

20. Method according to any of claims 13 to 19, characterized in that the sintering step is carried out in a hydrogen atmosphere or an argon atmosphere.

21. Heating body (10) made according to the method of any of claims 13 to 20 having an emissivity greater than or equal to 0.5.