CLAIMS

1. An aerosol coating method comprising:

performing a heat treatment process of preliminary ceramic particles having a first mean particle size (D_{50}) to form ceramic particles having a second mean particle size (D_{50}) larger than the first mean particle size;

mixing the ceramic particles with a carrier gas to form an aerosol; and

spraying the aerosol toward a base to form a ceramic coating film on the base,

wherein the heat treatment process comprises a multi-stage heating section, a temperature maintenance section, and a cooling section,

and the multi-stage heating section sequentially comprises a first heating section, a pause section, and a second heating section, and the second heating section has a temperature increase rate lower than that of the first heating section.

2. The aerosol coating method of claim 1, wherein the second mean particle size (D_{50}) has a range of 4.5-12.0 μm.

3. The aerosol coating method of claim 1, wherein the heat treatment process is performed at a temperature ranging from 500 °C to 1,400 °C.

4. The aerosol coating method of claim 3, wherein the heat treatment process is performed at a temperature ranging from 1,000 °C to 1,200 °C.

5. The aerosol coating method of claim 1, wherein the temperature maintenance section has a maintenance time in a range of 1-5 hours.

6. The aerosol coating method of claim 1, wherein the cooling section has a cooling rate not higher than 270 °C/hour.

7. A plasma-resistant member comprising:

a base; and

a ceramic coating film formed on the base by the method according to any of claims 1 to 6.

8. The plasma-resistant member of claim 7, wherein the ceramic coating film has an adhesive force in a range of 14.0-17.5 MPa with respect to the base.

9. The plasma-resistant member of claim 7, wherein the ceramic coating film has a hardness in a range of 400-550 Hv.

10. The plasma-resistant member of claim 7, wherein the ceramic coating film has an etch rate in a range of 0.52-0.58 μm/h when the etch rate is measured by a plasma etch using a power of 700 W and a fluorocarbon gas as an etching gas.