Claims

[Claim 1] A joining material comprising:

a sintered body formed by sintering silver powder,

wherein a porosity of the sintered body is 8% to 30%,

the porosity of the sintered body is measured by [Measurement of porosity of a sintered body], and

a surface roughness Ra of a joining surface is 1.06 μm or more and 3.3 μm or less:

[Measurement of porosity of a sintered body]

First, the sintered body is immersed in water to measure a volume of the sintered body, and a mass of the sintered body is measured; in addition, the volume corresponding to the mass thereof in a case where the sintered body does not have pores is calculated based on a theoretical density; the porosity of the sintered body is calculated from the measured volume; and the theoretical volume in a case where there are no pores.

[Claim 2] A method for producing a joining material, the method comprising:
a step of heating a coating film formed by using a dispersion liquid of a solvent and silver powder to obtain a sintered body, and

a step of performing plating with one or more selected from the group consisting of silver, copper, tin, gold, and nickel on the surface of the sintered body,

wherein a content of the solvent in the dispersion liquid is 5% by mass or more and 25% by mass or less.

[Claim 3] A method for producing a joining material, the method comprising:
a step of heating a coating film formed by using a dispersion liquid of a solvent and silver powder to obtain a sintered body, and

a step of performing plating with one or more selected from the group consisting of silver, copper, tin, gold, and nickel on the surface of the sintered body,

wherein the silver powder contains a first silver particle group and a second silver particle group having different average particle diameters,

an average particle diameter of the first silver particle group is 50 nm or more and less than 1000 nm, and

an average particle diameter of the second silver particle group is 1 μm or more and

less than 20 μm.

[Claim 4] The method for producing a joining material according to Claim 3, wherein the silver powder further contains a third silver particle group having an average particle diameter of 20 μm or more and less than 60 μm.

[Claim 5] The method for producing a joining material according to any one of Claims 2 to 4, wherein, in the step of obtaining the sintered body, the coating film is heated while applying a pressure of 5 MPa or less to the coating film.

[Claim 6] A joined body comprising a conductor and a substrate that are joined by the joining material according to Claim 1.