CLAIMS

[Claim 1]

Spherical crystalline silica particles characterized in that the content of a crystal phase is 90 % by mass or more with respect to the total mass of the particles, and the content of a quartz crystal is 70 % by mass or more with respect to the total mass of the particles.

[Claim 2]

The spherical crystalline silica particles according to Claim 1, characterized in that they contain 0.4 to 5% by mass of at least one alkali metal in terms of oxide thereof with respect to the total mass of the particles.

[Claim 3]

The spherical crystalline silica particles according to Claim 2, characterized in that the alkali metal is Li.

[Claim 4]

The spherical crystalline silica particles according to Claim 1, characterized in that they contain 1 to 5% by mass of at least one alkaline earth metal in terms of oxide thereof with respect to the total mass of the particles.

[Claim 5]

The spherical crystalline silica particles according to Claim 4, characterized in that the alkaline earth metal is Ca.

[Claim 6]

The spherical crystalline silica particle according to any one of Claims 1 to 5, characterized in that they contain 50 to 5000 ppm of aluminum in terms of metallic aluminum with respect to the total mass of the particles.

[Claim 7]

The spherical crystalline silica particles according to any one of Claims 1 to 6, characterized in that their average particle diameter (D50) is from 1 to 100 μm.

[Claim 8]

The spherical crystalline silica particles according to any one of Claims 1 to 7, characterized in that their average circularity is 0.88 or more.

[Claim 9]

A method for producing spherical crystalline silica particles, characterized in that it comprises steps of:

mixing amorphous spherical silica particles with an alkaline metal compound in a proportion of the alkaline metal in an amount of 0.4 to 5 % by mass in terms of oxide thereof, based on the total mass of the mass of the amorphous spherical silica particles and the mass of the alkaline metal in terms of oxide thereof,

heat treating the mixed spherical silica particles at 800 to 1300 °C, and

cooling the heat treated spherical silica particles,

wherein the cooled spherical silica particles contain 90 % by mass or more of a crystal phase, and the content of a quartz crystal is 70 % by mass or more with respect to the total mass of the particles.

[Claim 10]

The method for producing spherical crystalline silica particles according to Claim 9, characterized in that the alkali metal is Li.

[Claim 11]

The method for producing spherical crystalline silica particles according to Claim 10, characterized in that the alkali metal compound is Li_2CO_3.

[Claim 12]

A method for producing spherical crystalline silica particles, characterized in that it comprises steps of:

mixing amorphous spherical silica particles with an alkaline earth metal compound in a proportion of the alkaline earth metal in an amount of 1 to 5 % by mass in terms of oxide thereof, based on the total mass of the mass of the amorphous spherical silica particles and the mass of the alkaline earth metal in terms of oxide thereof,

heat treating the mixed spherical silica particles at 800 to 1300 °C, and

cooling the heat treated spherical silica particles,

wherein the cooled spherical silica particles contain 90 % by mass or more of a crystal phase, and the content of a quartz crystal is 70 % by mass or more with respect to the total mass of the particles.

[Claim 13]

The method for producing spherical crystalline silica particles according to Claim 12, characterized in that the alkaline earth metal is Ca.

[Claim 14]

The method for producing spherical crystalline silica particles according to Claim 13, characterized in that the alkaline earth metal compound is $CaCO_3$ or $Ca(OH)_2$.

[Claim 15]

The method for producing spherical crystalline silica particles according to any one of Claims 9 to 14, characterized in that the amorphous spherical silica particles containing 50 to 5000 ppm of aluminum in terms of metallic aluminum are

used.

[Claim 16]

The method for producing spherical crystalline silica particles according to any one of Claims 9 to 15, characterized in that the spherical crystalline silica particles are produced so that their average particle diameter (D50) is from 1 to 100 μm.

[Claim 17]

The method for producing spherical crystalline silica particles according to any one of Claims 9 to 16, wherein the spherical crystalline silica particles are produced so that their average circularity is 0.88 or more.

[Claim 18]

A mixture comprising the spherical crystalline silica particles according to claim 1 and a resin

[Claim 19]

A semiconductor sealing material comprising the mixture according to claim 18.