SUMMARY

PROBLEMS TO BE SOLVED

[0008]

However, when a heat-resistant resin composition is applied on a narrow pitch and high aspect coil pattern which has been seen in recent years, the heat-resistant resin composition is insufficiently applied to or covers step parts in the coil pattern, and therefore the flatness of the surface of the coil pattern may be deteriorated. As a result, the problem arises that the processing accuracy of the coil pattern is largely deteriorated in the upper layer of the laminated coil structure. Therefore, there is a demand for a heat-resistant resin composition which can cover step parts of the coil pattern, can provide a flat surface, and has excellent step embedding properties.

[0009]

Accordingly, an object of the embodiments disclosed herein is to provide a heat-resistant resin composition having excellent step embedding properties on a support substrate such as a coil pattern.

SOLUTIONS TO THE PROBLEMS

[0010]

In order to achieve the above object, a heat-resistant

resin composition according to the present disclosure has the following constitutions. That is, (1) a heat-resistant resin composition containing at least one resin selected from the group consisting of a polyimide, a polybenzoxazole, a polyimide precursor, and a polybenzoxazole precursor as a resin (A); an organic solvent having a boiling point of 210°C or higher and 260°C or lower at atmospheric pressure as an organic solvent (B); and an organic solvent having a boiling point of 100°C or higher and lower than 210°C at atmospheric pressure as an organic solvent (C), wherein a content of the organic solvent (B) is 5% by mass or more and 70% by mass or less with respect to the whole amount of the organic solvents; and a content of the organic solvent (C) is 30% by mass or more and 95% by mass or less with respect to the whole amount of the organic solvents.

(2) The heat-resistant resin composition according to the above (1), wherein the organic solvent (C) contains an organic solvent having a boiling point of 140°C or higher and lower than 210°C at atmospheric pressure as an organic solvent (C-1), and an organic solvent having a boiling point of 100°C or higher and lower than 140°C at atmospheric pressure as an organic solvent (C-2); and a ratio of a content of the organic solvent (C-1) to a content of the organic solvent (C-2) is 1 : 9 to 9 : 1 by mass ratio.

(3) The heat-resistant resin composition according to the above (2), wherein the organic solvent (B), the organic solvent

(6) A method for manufacturing an interlayer insulation film or a surface protective film, the method including the steps of applying the heat-resistant resin composition according to any one of the above (1) to (4) on a support substrate, drying the heat-resistant resin composition to form a coating; and heat-treating the coating film.

(7) A method for manufacturing an electronic component or a semiconductor component including an interlayer insulation film or a surface protective film obtained by the method for manufacturing an interlayer insulation film or a surface protective film according to the above (6).

(8) The method for manufacturing an electronic component or a semiconductor component according to the above (7), wherein 2 to 10 interlayer insulation films are used.

[0016a]

In an aspect, there is provided a heat-resistant resin composition comprising:

at least one resin selected from the group consisting of a polyimide, a polybenzoxazole, a polyimide precursor, and a polybenzoxazole precursor as a resin (A);

an organic solvent having a boiling point of 210°C or higher and 260°C or lower at atmospheric pressure as an organic solvent (B); and

an organic solvent having a boiling point of 100°C or higher and lower than 210°C at atmospheric pressure as an organic

solvent (C),

wherein

a content of the organic solvent (B) is 5% by mass or more and 70% by mass or less with respect to the whole amount of the organic solvents; and

a content of the organic solvent (C) is 30% by mass or more and 95% by mass or less with respect to the whole amount of the organic solvents.

[0016b]

In another aspect, there is provided a method for manufacturing a heat-resistant resin film, the method comprising the steps of:

applying the heat-resistant resin composition as defined above on a support substrate, drying the heat-resistant resin composition to form a coating film; and

heat-treating the coating film.

[0016c]

In another aspect, there is provided a method for manufacturing an interlayer insulation film or a surface protective film, the method comprising the steps of:

applying the heat-resistant resin composition as defined above on a support substrate, drying the heat-resistant resin composition to form a coating film; and

heat-treating the coating film.

[0016d]

In another aspect, there is provided a method for manufacturing an electronic component or a semiconductor component including an interlayer insulation film or a surface protective film obtained by the method for manufacturing an interlayer insulation film or a surface protective film as defined above.

EFFECTS

[0017]

The present disclosure can provide a heat-resistant resin composition having excellent step embedding properties after being applied.

BRIEF DESCRIPTION OF THE DRAWINGS

[0018]

Fig. 1 is an enlarged cross-sectional view of a semiconductor component having a surface protective film.