and properties curing in a short time are required of the coating agent for forming a resin layer on a wafer, and high strength is required of a cured product. It is common to use an epoxy composition as these materials; however, the epoxy composition has a problem that strength is low although it is characterized by having excellent adhesiveness. Therefore, as a method of improving this problem, a resin composition having a polyimide mixed therein is reported. (for example, Patent Document 1, Patent Document 2).

PRIOR ART DOCUMENTS

PATENT DOCUMENTS

[0005]

Patent Document 1: Japanese Patent Laid-open Publication No. 2009-277818

Patent Document 2: Japanese Patent Laid-open Publication No. 2007-211246

SUMMARY ~~OF THE INVENTION~~

PROBLEMS TO BE SOLVED ~~BY THE INVENTION~~

[0006]

However, the resin composition in Patent Document 1 or Patent Document 2 has a problem concerning the strength in a cracked state. In view of such situations, it is an object of the ~~present invention~~embodiments disclosed herein to provide an adhesive composition which

is excellent in strength in a cracked state.

SOLUTIONS TO THE PROBLEMS

[0007]

That is, the present ~~invention~~ disclosure pertains to an adhesive composition including a polyimide (A), a polyfunctional epoxy compound (B), an epoxy curing agent (C), and inorganic particles (D), wherein the ratio of the polyimide (A) in a nonvolatile organic component is 3.0 wt% or more and 30 wt% or less, the ratio of the epoxy curing agent (C) in the nonvolatile organic component is 0.5 wt% or more and 10 wt% or less, and T/M is 400 or more and 8000 or less when the total number of grams of the nonvolatile organic component is denoted by T, and the number of moles of epoxy groups in the nonvolatile organic component is denoted by M.

[0007a]

In an aspect, there is provided an adhesive composition comprising a polyimide (A), a polyfunctional epoxy compound (B), an epoxy curing agent (C), and inorganic particles (D), wherein the polyimide (A) has at least one functional group capable of reacting with an epoxy group on its side chain, the polyfunctional epoxy compound (B) contains a liquid epoxy compound and a bisphenol A epoxy resin having an epoxy equivalent weight of 1000 or more and 7000 or less, the epoxy curing agent (C) is an imidazole-based curing agent,

the ratio of the polyimide (A) in a nonvolatile organic component is 5.0 wt% or more and 30 wt% or less,
the ratio of the liquid epoxy compound in the nonvolatile organic component is 10 wt% or more and 50 wt% or less,
the ratio of the bisphenol A epoxy resin in the nonvolatile organic component is 20 wt% or more and 70 wt% or less,
the ratio of the epoxy curing agent (C) in the nonvolatile organic component is 1.0 wt% or more and 10 wt% or less, and
T/M is 400 or more and 8000 or less when the total number of grams of the nonvolatile organic component is denoted by T, and the number of moles of epoxy groups in the nonvolatile organic component is denoted by M.

[0007b]

In another aspect, there is provided an adhesive film having a layer composed of the adhesive composition as defined above, and a support film.

[0007c]

In another aspect, there is provided a substrate provided with the adhesive composition having a layer composed of the adhesive composition as defined above, and a substrate.

[0007d]

In another aspect, there is provided a semiconductor device having a layer composed of the adhesive composition as defined above.

[0007e]

In another aspect, there is provided a method for producing a semiconductor device in which the adhesive composition as defined above is interposed between a first circuit member and a second circuit member, and the first circuit member is electrically connected to the second circuit member by heating/applying pressure to the adhesive composition.

EFFECTS ~~OF THE INVENTION~~

[0008]

According to the present ~~invention~~disclosure, it is possible to obtain an adhesive composition having excellent strength in a cracked state.

EMBODIMENTS OF THE INVENTION

[0009]

An adhesive composition of the present invention includes