electrode connection and sealing; a method (a so-called capillary method) in which electrical connection between an electrode on a semiconductor chip and a substrate is first established and then a liquid adhesive composition is applied on a side or a plurality of sides of the chip for sealing the gap between the wiring substrate and the semiconductor chip by capillarity and the like. By any of the methods, it is required to apply a liquid adhesive composition all over the wiring substrate, to fill the liquid adhesive composition uniformly in the gap between the semiconductor chip and the wiring substrate, and the like. Therefore, occasionally, a syringe, the substrate and the like are heated to room temperature or higher as needed in order to increase flowability of the adhesive composition.

[0006]

However, when an underfill sealant utilizing a radical curing reaction is used, there has been a problem in that a curing reaction of an underfill sealant composition may occasionally progress prematurely before carrying out sealing, which leads to inadequate electrode connection or poor work efficiency. Such a problem tends to occur when an adhesive composition is in a state at room temperature or higher, as described above. In order to overcome the problem, whereas an additive is mixed in an underfill sealant composition or the working temperature is lowered, it has not been sufficient. Consequently, further improvement of an adhesive composition to be used for an electronic device has been sought after.

Citation List

Patent Literature

[0007]

Patent Literature 1: Japanese Patent Laid-Open No. 2010-226098

Patent Literature 2: Japanese Patent Laid-Open No. H08(1996)-213517

Summary ~~of Invention~~

Technical Problem

[0008]

An object of the present ~~invention~~ disclosure is to solve the aforedescribed problems in using a conventional adhesive composition and to provide a composition which improves productivity of electronic devices. Further, another object is to

provide an electronic device or an electronic appliance containing the composition.

Solution to Problem

[0009]

One ~~aspect of the invention relates to an underfill sealant composition comprising: (a) 20-60% of a (meth)acrylic compound; (b) 1-20% of a maleimide compound wherein the maleimide compound (b) comprises à bismaleimide; (c) 1-20% of an isocyanuric acid having an allyl group; (d) 0.1-5% of a radical initiator; and (e) 10-80% of a filler, wherein all % are based on the total weight of the composition.~~

~~Another~~ aspect relates to an underfill sealant composition comprising: (a) 20-60% of a (meth)acrylic compound; (b) 1-20% of a maleimide compound wherein the maleimide compound (b) comprises a bismaleimide; (c) 0.001-20% of an isocyanuric acid having an allyl group; (d) 0.1-5% of a radical initiator; and (e) 10-80% of a filler, wherein all % are based on the total weight of the composition.

Another aspect relates to an electronic device comprising a cured product of the composition as disclosed herein.

Yet another aspect relates to an electronic appliance comprising the electronic device as defined above.

The present disclosure further relates to the following items.

[0010]

1. An underfill sealant composition comprising:

(a) a (meth)acrylic compound and

(c) an isocyanuric acid having an allyl group.

[0011]

2. The composition according to the above item 1, further comprising (b) a maleimide compound.

[0012]

3. The composition according to the above item 2, wherein the maleimide compound (b) comprises a bismaleimide.

[0013]

4. The composition according to any one of the above items 1 to 3, further comprising a radical initiator.

[0014]

5. The composition according to any one of the above items 1 to 4 comprising:

10-90 wt% of the (meth)acrylic compound (a) based on the total weight of the composition and

0.001-20 wt% of the isocyanuric acid having an allyl group (c) based on the total weight of the composition.

[0015]

6. The composition according to any one of the above items 2 to 5, comprising 0.1-50 wt% of the maleimide compound (b) based on the total weight of the composition.

[0016]

7. The composition according to any one of the above items 1 to 6, which is used in flip chip mounting.

[0017]

8. An electronic device comprising a cured product of the composition according to any one of the above items 1 to 7.

[0018]

CLAIMS

~~1. An underfill sealant composition comprising:~~

~~(a) 20-60% of a (meth)acrylic compound;~~

~~(b) 1-20% of a maleimide compound wherein the maleimide compound (b) comprises a bismaleimide;~~

~~(c) 1-20% of an isocyanuric acid having an allyl group;~~

~~(d) 0.1-5% of a radical initiator; and~~

~~(e) 10-80% of a filler,~~

~~wherein all % are based on the total weight of the composition.~~

21. An underfill sealant composition comprising:

(a) 20-60% of a (meth)acrylic compound;

(b) 1-20% of a maleimide compound wherein the maleimide compound (b) comprises a bismaleimide;

(c) 0.001-20% of an isocyanuric acid having an allyl group;

(d) 0.1-5% of a radical initiator; and

(e) 10-80% of a filler,

wherein all % are based on the total weight of the composition.

32. The composition according to Claim~~s~~ 1 ~~or 2~~, which is used in flip chip mounting.

43. An electronic device comprising a cured product of the composition according to any one of Claims 1 to 32.

45. An electronic appliance comprising the electronic device according to Claim 43.