CLAIMS

1. A film-like adhesive, which is obtained from an adhesive composition,

wherein an arithmetic average roughness Ra of a surface of the film-like adhesive is 3.0 μm or less, and

wherein a thickness of the film-like adhesive is in a range of 1 μm or more and less than 10 μm,

the adhesive composition comprising:

an epoxy resin (A);

an epoxy resin curing agent (B);

a polymer component (C); and

an inorganic filler (D),

wherein the polymer component (C) contains a phenoxy resin,

wherein the inorganic filler (D) satisfies the following conditions (1) and (2),

condition (1): an average particle diameter (d50) is 0.1 to 3.5 μm,

condition (2): a ratio of a particle diameter at 90% cumulative distribution frequency (d90) to the average particle diameter (d50) is 5.0 or less, and

wherein a proportion of the inorganic filler (D) in a total content of the epoxy resin (A), the epoxy resin curing agent (B), the polymer component (C) and the inorganic filler (D) is 20 to 70% by volume.

2. The film-like adhesive according to Claim 1,

wherein when the film-like adhesive is heated at a temperature elevation rate of 5°C/min from 25°C, a melt viscosity at 70°C reaches a range of 6,000 to 50,000 Pa·s, and a melt viscosity at 120°C reaches a range of 500 to 10,000 Pa·s, and

wherein a cured product having a thermal conductivity of 1.0 W/m·K or more is obtained after thermal curing of the film-like adhesive.

3. The film-like adhesive according to Claim 1 or 2,

wherein a thickness of the film-like adhesive is thicker than the average particle diameter (d50) of the inorganic filler (D).

4. The film-like adhesive according to any one of Claim 1 to 3, wherein a thickness of the film-like adhesive is 4.8 μm or more thicker than the average particle diameter (d50) of the inorganic filler (D).

5. The film-like adhesive according to any one of Claims 1 to 4,

wherein the inorganic filler (D) is a particle made of a thermally conductive material or a particle whose surface is coated with the thermally conductive material, and

wherein a thermal conductivity of the thermally conductive material is 12 W/m·K or more.

6. A method of producing the film-like adhesive according to any one of Claims 1 to 5, comprising manufacturing by applying an adhesive composition on a substrate film subjected to release treatment and drying the adhesive composition,

wherein the adhesive composition comprising:

an epoxy resin (A);

an epoxy resin curing agent (B);

a polymer component (C); and

an inorganic filler (D),

wherein the polymer component (C) contains a phenoxy resin,

wherein the inorganic filler (D) satisfies the following conditions (1) and (2),

condition (1): an average particle diameter (d50) is 0.1 to 3.5 μm,

condition (2): a ratio of a particle diameter at 90% cumulative distribution frequency (d90) to the average particle diameter (d50) is 5.0 or less, and

wherein a proportion of the inorganic filler (D) in a total content of the epoxy resin (A), the epoxy resin curing agent (B), the polymer component (C) and the inorganic filler (D) is 20 to 70% by volume.

7. A method of producing a semiconductor package, comprising:

a first step of providing an adhesive layer by thermocompression bonding the film-like adhesive according to any one of Claims 1 to 5 to a back surface of a semiconductor wafer in which at least one semiconductor circuit is formed on a surface, and providing a dicing tape via the adhesive layer;

a second step of dicing the semiconductor wafer and the adhesive layer simultaneously to obtain a semiconductor chip with an adhesive layer, the semiconductor chip with an adhesive layer including the semiconductor wafer and the adhesive layer on the dicing tape;

a third step of removing the dicing tape from the adhesive layer and thermocompression bonding the semiconductor chip with an adhesive layer and a wiring board via the adhesive layer; and

a fourth step of thermally curing the adhesive layer.

8. A semiconductor package wherein a semiconductor chip and a wiring board, or semiconductor chips are bonded with a thermally curable component of the film-like adhesive according to any one of Claims 1 to 5.