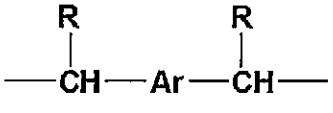
CLAIMS

[Claim 1]

A thermosetting resin composition comprising an epoxy resin (A) and a phenolic resin (B) as essential components, wherein the phenolic resin (B) has structural moieties which are a naphthylmethyloxy group- or anthrylmethyloxy group-containing aromatic hydrocarbon group (ph1),
a phenolic hydroxyl group-containing aromatic hydrocarbon group (ph2), and
a divalent aralkyl group (X) represented by a general formula below:

[Chem. 1]



General formula 1

(where Ar represents a phenylene group or a biphenylene group and Rs each independently represent a hydrogen atom or a methyl group)
and has a structure in which plural aromatic hydrocarbon groups selected from the group consisting of the naphthylmethyloxy group- or anthrylmethyloxy group-containing aromatic hydrocarbon group (ph1) and the phenolic hydroxyl group-containing aromatic hydrocarbon group (ph2) are bonded through the divalent aralkyl group (X).

[Claim 2]

The thermosetting resin composition according to Claim

1, wherein the phenolic resin (B) has a melt viscosity of 0.1 to 100 dPa·s measured at 150°C with an ICI viscometer.

[Claim 3]

A semiconductor sealing material comprising the epoxy resin (A) and the phenolic resin (B) according to Claim 1 or 2; and an inorganic filler in an amount of 70% to 95% by mass in the composition.

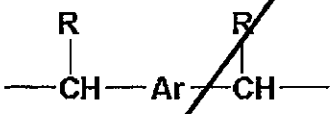
[Claim 4]

A cured product obtained by curing the thermosetting resin composition according to Claim 1 or 2.

[Claim 5]

A phenolic resin comprising structural moieties which are a naphthylmethyloxy group- or anthrylmethyloxy group-containing aromatic hydrocarbon group (ph1), a phenolic hydroxyl group-containing aromatic hydrocarbon group (ph2), and a divalent aralkyl group (X) represented by general formula 1 below:

[Chem. 2]



General formula 1

(where Ar represents a phenylene group or a biphenylene group and Rs each independently represent a hydrogen atom or a methyl group)

and having a structure in which plural aromatic hydrocarbon groups selected from the group consisting of the

naphthylmethyloxy group- or anthrylmethyloxy group-containing aromatic hydrocarbon group (ph1) and the phenolic hydroxyl group-containing aromatic hydrocarbon group (ph2) are bonded through the divalent aralkyl group (X).

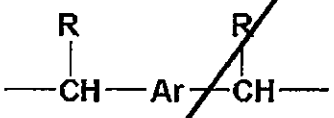
[Claim 6]

The phenolic resin according to Claim 5, wherein a melt viscosity measured at 150°C with an ICI viscometer is 0.1 to 100 dPa·s.

[Claim 7]

A thermosetting resin composition comprising an epoxy resin (A') and a curing agent (B') as essential components, wherein the epoxy resin (A') has structural moieties which are a naphthylmethyloxy group- or anthrylmethyloxy group-containing aromatic hydrocarbon group (ph1), a glycidyloxy group-containing aromatic hydrocarbon group (ep), and a divalent aralkyl group (X) represented by general formula 1 below:

[Chem. 3]



General formula 1

(where Ar represents a phenylene group or a biphenylene group and Rs each independently represent a hydrogen atom or a methyl group)

and has a structure in which aromatic hydrocarbon groups selected from the group consisting of the naphthylmethyloxy

group- or anthrylmethyloxy group-containing aromatic hydrocarbon group (ph1) and the glycidyloxy group-containing aromatic hydrocarbon group (ep) are bonded through the divalent aralkyl group (X).

[Claim 8]

The thermosetting resin composition according to Claim 7, wherein the epoxy resin (A') has a melt viscosity of 0.1 to 100 dPa·s measured at 150°C with an ICI viscometer.

[Claim 9]

A semiconductor sealing material comprising the epoxy resin and the curing agent according to Claim 7 or 8; and an inorganic filler in an amount of 70% to 95% by mass in the composition.

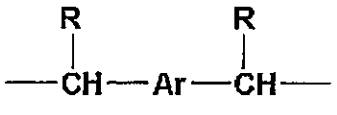
[Claim 10]

A cured product obtained by curing the thermosetting resin composition according to Claim 7 or 8.

[Claim 11]

An epoxy resin comprising structural moieties which are a naphthylmethyloxy group- or anthrylmethyloxy group-containing aromatic hydrocarbon group (ph1), a glycidyloxy group-containing aromatic hydrocarbon group (ep), and a divalent aralkyl group (X) represented by general formula 1 below:

[Chem. 4]



General formula 1

(where Ar represents a phenylene group or a biphenylene group and Rs each independently represent a hydrogen atom or a methyl group)

and having a structure in which aromatic hydrocarbon groups selected from the group consisting of the naphthylmethyloxy group- or anthrylmethyloxy group-containing aromatic hydrocarbon group (ph1) and the glycidyloxy group-containing aromatic hydrocarbon group (ep) are bonded through the divalent aralkyl group (X).

[Claim 12]

The epoxy resin according to Claim 11, wherein the epoxy resin has a melt viscosity of 0.1 to 100 dPa·s measured at 150°C with an ICI viscometer.

CLAIMS

[Claim 1]

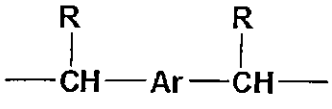
A thermosetting resin composition comprising an epoxy resin (A) and a phenolic resin (B) as essential components, wherein the phenolic resin (B) has

structural moieties which are a naphthylmethyloxy group- or anthrylmethyloxy group-containing aromatic hydrocarbon group (ph1),

a phenolic hydroxyl group-containing aromatic hydrocarbon group (ph2), and

a structural moiety (X) represented by a general formula below:

[Chem. 1]



General formula 1

(where Ar represents a phenylene group or a biphenylene group and Rs each independently represent a hydrogen atom or a methyl group)

and has a structure in which plural of aromatic hydrocarbon groups selected from the group consisting of the naphthylmethyloxy group- or anthrylmethyloxy group-containing aromatic hydrocarbon group (ph1) and the phenolic hydroxyl group-containing aromatic hydrocarbon group (ph2) are bonded through the structural moiety (X).

[Claim 2]

The thermosetting resin composition according to Claim 1, wherein the phenolic resin (B) has a melt viscosity of 0.1 to 100 dPa·s measured at 150°C with an ICI viscometer.

[Claim 3]

A semiconductor sealing material comprising the epoxy resin (A) and the phenolic resin (B) according to Claim 1 or 2; and an inorganic filler in an amount of 70% to 95% by mass in the composition.

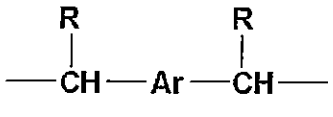
[Claim 4]

A cured product obtained by curing the thermosetting resin composition according to Claim 1 or 2.

[Claim 5]

A phenolic resin comprising structural moieties which are a naphthylmethyloxy group- or anthrylmethyloxy group-containing aromatic hydrocarbon group (ph1), a phenolic hydroxyl group-containing aromatic hydrocarbon group (ph2), and a structural moiety (X) represented by general formula 1 below:

[Chem. 2]



General formula 1

(where Ar represents a phenylene group or a biphenylene group and Rs each independently represent a hydrogen atom or a methyl group)

and having a structure in which plural of aromatic hydrocarbon groups selected from the group consisting of the naphthylmethyloxy group- or anthrylmethyloxy group-containing aromatic hydrocarbon group (ph1) and the phenolic hydroxyl group-containing aromatic hydrocarbon group (ph2) are bonded through the structural moiety (X).

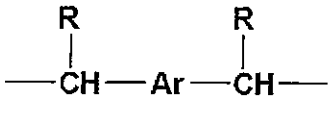
[Claim 6]

The phenolic resin according to Claim 5, wherein a melt viscosity measured at 150°C with an ICI viscometer is 0.1 to 100 dPa·s.

[Claim 7]

A thermosetting resin composition comprising an epoxy resin (A') and a curing agent (B') as essential components, wherein the epoxy resin (A') has structural moieties which are a naphthylmethyloxy group- or anthrylmethyloxy group-containing aromatic hydrocarbon group (ph1), a glycidyloxy group-containing aromatic hydrocarbon group (ep), and a structural moiety (X) represented by general formula 1 below:

[Chem. 3]


General formula 1

(where Ar represents a phenylene group or a biphenylene group and Rs each independently represent a hydrogen atom or a methyl group)

and has a structure in which aromatic hydrocarbon groups selected from the group consisting of the naphthylmethyloxy group- or anthrylmethyloxy group-containing aromatic hydrocarbon group (ph1) and the glycidyloxy group-containing aromatic hydrocarbon group (ep) are bonded through the structural moiety (X).

[Claim 8]

The thermosetting resin composition according to Claim 7, wherein the epoxy resin (A') has a melt viscosity of 0.1 to 100 dPa·s measured at 150°C with an ICI viscometer.

[Claim 9]

A semiconductor sealing material comprising the epoxy resin and the curing agent according to Claim 7 or 8; and an inorganic filler in an amount of 70% to 95% by mass in the composition.

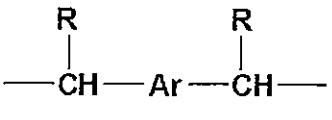
[Claim 10]

A cured product obtained by curing the thermosetting resin composition according to Claim 7 or 8.

[Claim 11]

An epoxy resin comprising structural moieties which are a naphthylmethyloxy group- or anthrylmethyloxy group-containing aromatic hydrocarbon group (ph1), a glycidyloxy group-containing aromatic hydrocarbon group (ep), and a structural moiety (X) represented by general formula 1 below:

[Chem. 4]


General formula 1

(where Ar represents a phenylene group or a biphenylene group and Rs each independently

represent a hydrogen atom or a methyl group)

and having a structure in which aromatic hydrocarbon groups selected from the group consisting of the naphthylmethyloxy group- or anthrylmethyloxy group-containing aromatic hydrocarbon group (ph1) and the glycidyloxy group-containing aromatic hydrocarbon group (ep) are bonded through the structural moiety (X).

[Claim 12]

The epoxy resin according to Claim 11, wherein the epoxy resin has a melt viscosity of 0.1 to 100 dPa·s measured at 150°C with an ICI viscometer.