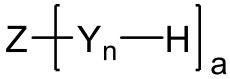
CLAIMS

1. A polyphenylene ether composition comprising:

60 mol% or more of a polyphenylene ether having a structure of the following Formula (1),

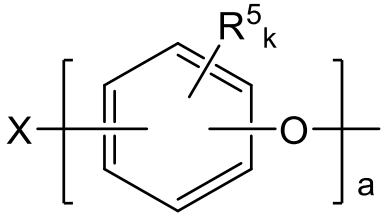
wherein a ratio of an integrated value of a peak appearing at 7.6 to 8.3 ppm to an integrated value of a peak derived from a structure of the following Formula (2) is 1 or less in a ^{1}H-NMR measurement result, and

a number average molecular weight in terms of polystyrene is 500 to 15000 g/mol,



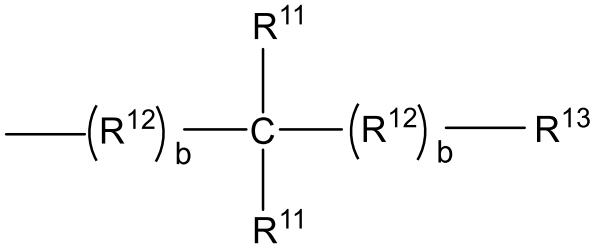
Formula (1)

in Formula (1), Z is an *a*-valent partial structure represented by the following Formula (2), *a* represents an integer of 2 to 6, Y are each independently a divalent linking group having a structure of the following Formula (4), n represents a repeating number of Y and are each independently an integer of 0 to 200, and at least one n in *a* (-Y_n-H) is an integer of 1 or more,



Formula (2)

in Formula (2), X is an optional *a*-valent linking group, R^5 are each independently an optional substituent, k are each independently an integer of 1 to 4, and at least one R^5 is a partial structure represented by the following Formula (3),

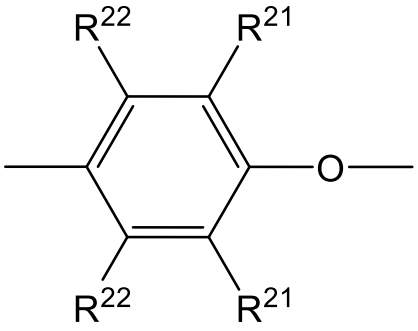


Formula (3)

in Formula (3), R^{11} are each independently an optionally substituted alkyl group having a carbon number of 1 to 8, R^{12} are each independently an optionally substituted alkylene group having a carbon number of 1 to 8, b are each independently 0 or 1, and R^{13} represents one of a hydrogen atom, an

optionally substituted alkyl group having a carbon number of 1 to 8, and an optionally substituted phenyl group,

when the position of the carbon atom of the benzene ring to which -O- is bonded in Formula (2) is designated as Position 1, R^5 having the partial structure of Formula (3) is bonded to one carbon atom at Position 2 or Position 6, and a hydrogen atom, a methyl group, or an ethyl group is bonded to the other carbon atom at Position 2 or Position 6, and



Formula (4)

in Formula (4), R^{21} are each independently one of a hydrogen atom, an optionally substituted hydrocarbon group having a carbon number of 1 to 6, an optionally substituted aryl group having a carbon number of 6 to 12, and a halogen atom, and two R^{21} cannot be both hydrogen atoms, and two R^{21} are not in a combination in which one R^{21} is the partial structure represented by the above Formula (3) and the other R^{21} is one of a hydrogen atom, a methyl group, or an ethyl group, and R^{22} are each independently one of a hydrogen atom, an optionally substituted hydrocarbon group having a carbon number of 1 to 6, an optionally substituted aryl group having a carbon number of 6 to 12, and a halogen atom.

2. The polyphenylene ether composition according to claim 1, wherein the partial structure represented by Formula (3) is a t-butyl group.

3. The polyphenylene ether composition according to claim 1 or 2, wherein the number of OH terminals contained in the polyphenylene ether composition is 1000 to 3000 μmol/g.

4. A polyphenylene ether composition comprising:

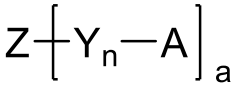
a modified polyphenylene ether having a structure of the following Formula (1)',

wherein the modified polyphenylene ether having the structure of the

following Formula (1)', a modified polyphenylene ether in which one or more (-Y_n-A) are (-Y_n-H) and not all (-Y_n-A) are (-Y_n-H) in the structure of the following Formula (1)', and a polyphenylene ether in which all (-Y_n-A) are (-Y_n-H) in the structure of the following Formula (1)' are contained in an amount of 60 mol% or more in total,

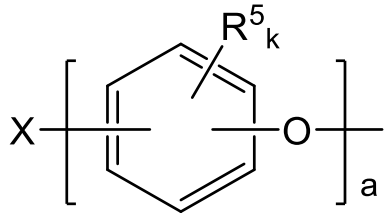
a ratio of an integrated value of a peak appearing at 7.6 to 8.3 ppm to an integrated value of a peak derived from the structure of the following Formula (2)' is 1 or less in a ^{1}H-NMR measurement result, and

a number average molecular weight in terms of polystyrene is 500 to 15000 g/mol,



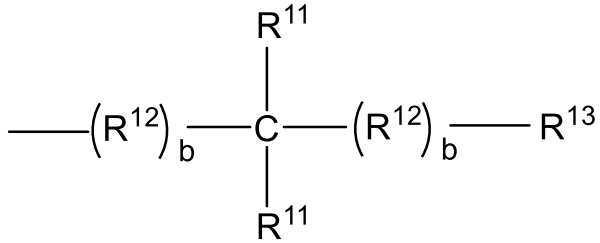
Formula (1)'

in Formula (1)', Z is an *a*-valent partial structure represented by the following Formula (2)', *a* represents an integer of 2 to 6, A each independently represents a substituent containing a carbon-carbon double bond and/or an epoxy bond, Y are each independently a divalent linking group having a structure of the following Formula (4)', n represents a repeating number of Y and are each independently an integer of 0 to 200, and at least one n in *a* (-Y_n-A) is an integer of 1 or more,



Formula (2)'

in Formula (2)', X is an optional *a*-valent linking group, R^5 are each independently an optional substituent, k are each independently an integer of 1 to 4, and at least one R^5 is a partial structure represented by the following Formula (3)',

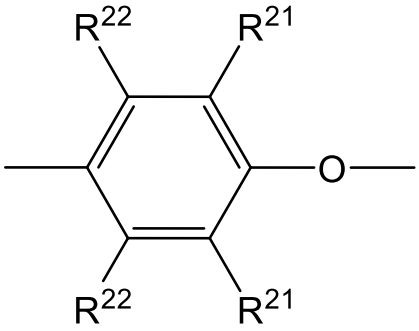


Formula (3)'

in Formula (3)', R^{11} are each independently an optionally substituted alkyl group having a carbon number of 1 to 8, R^{12} are each independently an

optionally substituted alkylene group having a carbon number of 1 to 8, b are each independently 0 or 1, and R^{13} represents one of a hydrogen atom, an optionally substituted alkyl group having a carbon number of 1 to 8 or an optionally substituted phenyl group,

when the position of the carbon atom of the benzene ring to which -O- is bonded in Formula (2)' is designated as Position 1, R^5 having the partial structure of Formula (3)' is bonded to one carbon atom at Position 2 or Position 6, and a hydrogen atom, a methyl group, or an ethyl group is bonded to the other carbon atom at Position 2 or Position 6, and

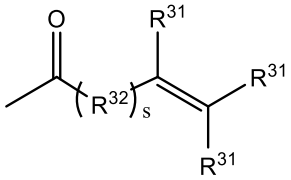


Formula (4)'

in Formula (4)', R^{21} are each independently one of a hydrogen atom, an optionally substituted hydrocarbon group having a carbon number of 1 to 6, an optionally substituted aryl group having a carbon number of 6 to 12, and a halogen atom, and two R^{21} cannot be both hydrogen atoms, and two R^{21} are not in a combination in which one R^{21} is the partial structure represented by the above Formula (3)' and the other R^{21} is one of a hydrogen atom, a methyl group, or an ethyl group, and R^{22} are each independently one of a hydrogen atom, an optionally substituted hydrocarbon group having a carbon number of 1 to 6, an optionally substituted aryl group having a carbon number of 6 to 12, and a halogen atom.

5. The polyphenylene ether composition according to claim 4, wherein the partial structure represented by Formula (3)' is a t-butyl group.

6. The polyphenylene ether according to claim 4 or 5, wherein A is a group represented by the following Formula (5)',



Formula (5)'

in Formula (5)',

R^{31} are each independently a hydrohen atom, a hydroxy group or a hydrocarbon group having a carbon number of 1 to 30, an aryl group, an alkoxy group, an allyloxy group, an amino group, or a hydroxyalkyl groups,

R^{32} are each independently a hydrocarbon group having a carbon number of 1 to 30, and

s is an integer between 0 and 5.

7. The polyphenylene ether composition according to any one of claims 4 to 6, wherein the number of A groups contained in the polyphenylene ether composition is from 700 to 3000 μmol/g.