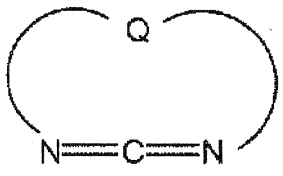
CLAIMS

1. A resin composition comprising a polyester (component A) and a compound including a cyclic structure having only one carbodiimide group whose first nitrogen and second nitrogen are bonded together by a bond group (component B).

~~2. The resin composition according to claim 1~~, wherein the number of atoms forming the cyclic structure of the component B is 8 to ~~50~~30.

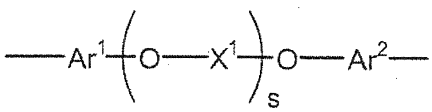
~~3. The resin composition according to claim 1~~, wherein the cyclic structure of the component B is represented by the following formula (1):



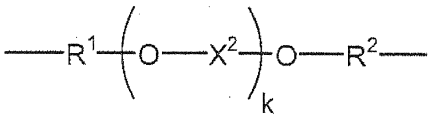
(1),

wherein Q is a divalent to tetravalent bond group ~~which is selected from an aliphatic group, an alicyclic group, an aromatic group or a combination of these and may contain a heteroatom or a substituent.~~

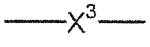
~~4. The resin composition according to claim 3, wherein Q is a divalent to tetravalent bond group~~ represented by the following formula (1-1), (1-2) or (1-3):



(1-1)



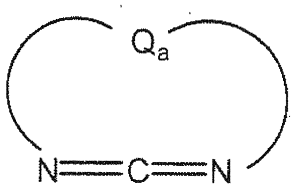
(1-2)



(1-3)

wherein Ar^1 and Ar^2 are each independently a divalent to tetravalent aromatic group having 5 to 15 carbon atoms and may contain a heteroatom or a substituent, R^1 and R^2 are each independently a divalent to tetravalent aliphatic group having 1 to 20 carbon atoms, a divalent to tetravalent alicyclic group having 3 to 20 carbon atoms, a combination thereof, or a combination of the aliphatic group, the alicyclic group and a divalent to tetravalent aromatic group having 5 to 15 carbon atoms, and may contain a heteroatom or a substituent, X^1 and X^2 are each independently a divalent to tetravalent aliphatic group having 1 to 20 carbon atoms, a divalent to tetravalent alicyclic group having 3 to 20 carbon atoms, a divalent to tetravalent aromatic group having 5 to 15 carbon atoms, or a combination thereof, and may contain a heteroatom or a substituent, s is an integer of 0 to 10, k is an integer of 0 to 10, with the proviso that when s or k is 2 or more, X^1 or X^2 as a recurring unit may differ from another X^1 or X^2, respectively, X^3 is a divalent to tetravalent aliphatic group having 1 to 2 0 carbon atoms, a divalent to tetravalent alicyclic group having 3 to 20 carbon toms, a divalent to tetravalent aromatic group having 5 to 15 carbon toms, or a combination thereof, and may contain a heteroatom or a substituent, with the proviso that when Q is a divalent bond group, Ar^1, Ar^2, R^1, R^2, X^1, X^2 and X^3 are all divalent groups, when Q is a tervalent bond group, one of Ar^1, Ar^2,R^1, R^2, X^1, X^2 and X^3 is a tervalent group, and when Q is a tetravalent bond group, one of Ar^1, Ar^2, R^1, R^2, X^1, X^2 and X^3 is a tetravalent group, or two of them are tervalent groups.

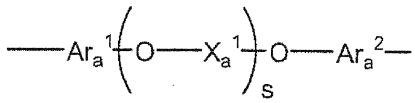
52. The resin composition according to claim 1, wherein the compound including a cyclic structure as the component B is represented by the following formula (2):



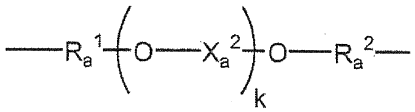
(2)

~~wherein Q_a is a divalent bond group which is selected from an aliphatic group, an alicyclic group, an aromatic group or a combination of these and may contain a heteroatom or a substituent.~~

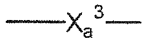
~~6. The resin composition according to claim 5,~~ wherein Q_a is a divalent bond group represented by the following formula (2-1), (2-2) or (2-3):



(2-1)



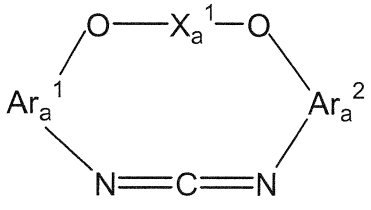
(2-2)



(2-3)

wherein Ar_a^1, Ar_a^2, R_a^1, R_a^2, X_a^1, X_a^2, X_a^3, s and k are identical to Ar^1, Ar^2, R^1, R^2, X^1, X^2, X^3, s and k in the above formulas (1-1) to (1-3), respectively.

~~7~~3. The resin composition according to claim ~~5~~2, wherein the compound including a cyclic structure is a compound represented by the following formula (2-1-1):

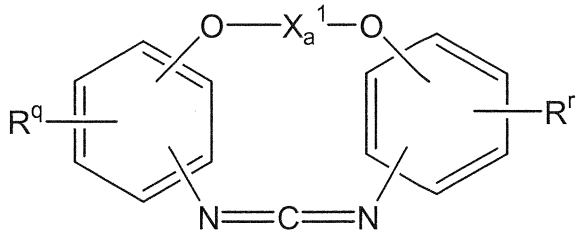


(2-1-1)

wherein Ar_a^1 and Ar_a^2 are each independently an arylene group

having 5 to 15 carbon atoms which may be substituted, and X_a^1 is an alkylene group having 1 to 20 carbon atoms.

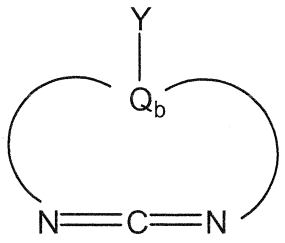
~~84~~. The resin composition according to claim ~~52~~, wherein the compound including a cyclic structure is a compound represented by the following formula (2-1-1a):



(2-1-1a)

wherein R^q and R^r are each independently a hydrogen atom or an alkyl group having 1 to 20 carbon atoms, and X_a^1 is an alkylene group having 1 to 20 carbon atoms.

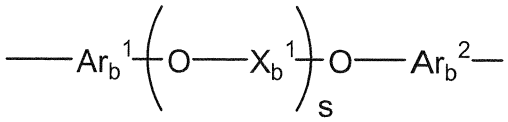
~~95~~. The resin composition according to claim 1, wherein the compound including a cyclic structure as the component B is represented by the following formula (3):



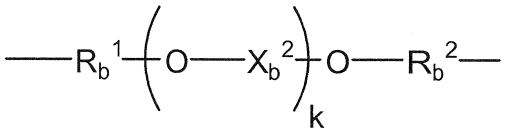
(3),

~~wherein Q_b is a tervalent bond group which is selected from an aliphatic group, an alicyclic group, an aromatic group or a combination of these and may contain a heteroatom or a substituent, and Y is a carrier supporting the cyclic structure.~~

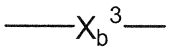
~~10. The resin composition according to claim 9,~~ wherein Q_b is a tervalent bond group represented by the following formula (3-1), (3-2) or (3-3):



(3-1)



(3-2)

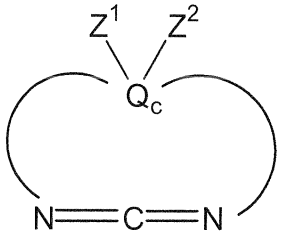


(3-3)

wherein Ar_b^1, Ar_b^2, R_b^1, R_b^2, X_b^1, X_b^2, X_b^3, s and k are identical to Ar^1, Ar^2, R^1, R^2, X^1, X^2, X^3, s and k in the above formulas (1-1) to (1-3), respectively, with the proviso that one of them is a tervalent group.

~~11~~6. The resin composition according to claim ~~9~~5, wherein Y is a single bond, a double bond, an atom, an atom group or a polymer.

~~12~~7. The resin composition according to claim 1, wherein the compound including a cyclic structure as the component B is represented by the following formula (4):

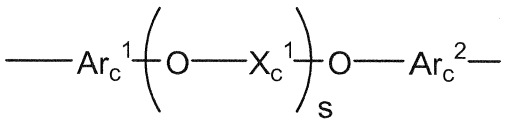


(4),

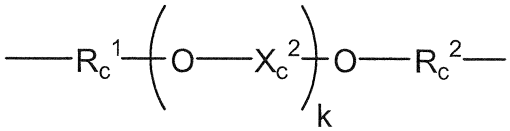
~~wherein Q_c is a tetravalent bond group which is selected from an aliphatic group, an alicyclic group, an aromatic group or a combination of these and may contain a heteroatom, and Z^1 and Z^2 are each a carrier supporting the cyclic structure.~~

~~13. The resin composition according to claim 12,~~ wherein Q_c is a tetravalent bond group represented by the following

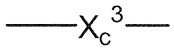
formula (4-1), (4-2) or (4-3):



(4-1)



(4-2)

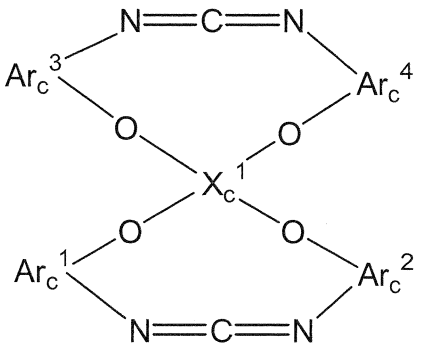


(4-3)

wherein Ar_c^1, Ar_c^2, R_c^1, R_c^2, X_c^1, X_c^2, X_c^3, s and k are identical to Ar^1, Ar^2, R^1, R^2, X^1, X^2, X^3, s and k in the above formulas (1-1) to (1-3), respectively, with the proviso that one of them is a tetravalent group, or two of them are tervalent groups.

~~148~~. The resin composition according to claim ~~127~~, wherein Z^1 and Z^2 are each independently a single bond, a double bond, an atom, an atom group or a polymer.

~~159~~. The resin composition according to claim ~~127~~, wherein the compound including a cyclic structure is a compound represented by the following formula (4-1-1):

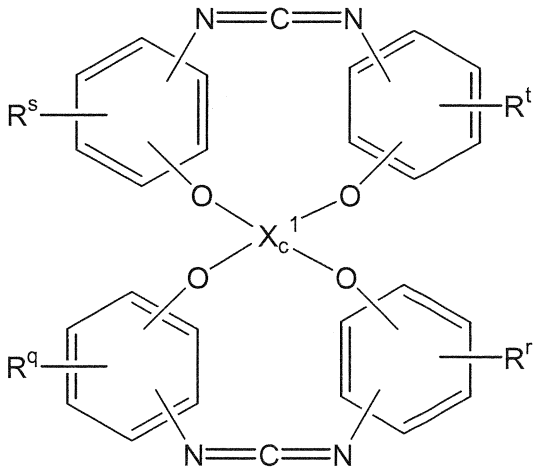


(4-1-1)

wherein X_c^1 is an alkanetetrayl group having 1 to 20 carbon atoms, and Ar_c^1, Ar_c^2, Ar_c^3 and Ar_c^4 are each independently an arylene group having 5 to 15 carbon atoms which may be

substituted.

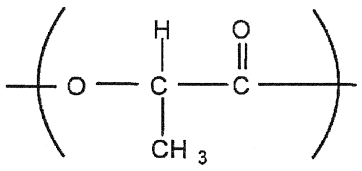
~~16~~10. The resin composition according to claim ~~13~~7, wherein the compound including a cyclic structure is a compound represented by the following formula (4-1-1c):



(4-1-1c)

wherein X_c^1 is an alkanetetrayl group having 1 to 20 carbon atoms, and R^q, R^r, R^s and R^t are each independently a hydrogen atom or an alkyl group having 1 to 20 carbon atoms.

~~17~~11. The resin composition according to claim 1, wherein the main chain of the polyester (component A) is essentially composed of a lactic acid unit represented by the following formula (I) and at least part of an end of the polyester is sealed with the component B.



(I)

~~18~~12. The resin composition according to claim ~~17~~11, wherein the main chain of the polyester (component A) is essentially composed of an L-lactic acid unit, a D-lactic acid unit or a combination thereof.

~~19~~13. The resin composition according to claim ~~17~~11, wherein the polyester (component A) has a stereocomplex phase formed by poly(L-lactic acid) and poly(D-lactic acid).

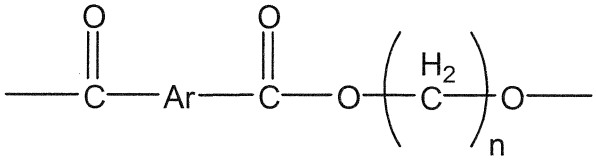
~~20~~14. The resin composition according to claim ~~17~~ 11 which has a crystal melting peak at 190°C or higher in differential scanning calorimeter (DSC) measurement.

~~21~~15. The resin composition according to claim ~~17~~ 11 which has a stereo crystal rate (S) defined by the following equation (i) of 90 to 100 %.

$$S = [\Delta Hms/(\Delta Hmh + \Delta Hms)] \times 100 \quad \text{(i)}$$

wherein ΔHms is the crystal melting enthalpy of the stereocomplex-phase polylactic acid and ΔHmh is the melting enthalpy of the homo-phase crystal of polylactic acid.

~~22~~16. The resin composition according to claim 1, wherein the main chain of the polyester (component A) is essentially composed of a recurring unit represented by the following formula (II) and at least part of an end of the polyester is sealed with the component B:



(II)

wherein n is an integer of 2 to 4, and Ar is a 1,4-phenylene group or a 2,6-naphthalenediyl group.

~~23~~17. The resin composition according to claim 1, wherein the content of the component B is 0.001 to 10 parts by weight based on 100 parts by weight of the polyester (component A).

~~24~~18. A molded article of the resin composition of any one of claims 1 to ~~23~~17.

~~25~~19. A process for producing a resin composition according to claim 1, comprising melt kneading a polyester (component A) with ~~a~~ the compound including a cyclic structure having one carbodiimide group whose first nitrogen and second nitrogen are bonded together by a bond group (component B).

~~26~~20. The production process according to claim ~~21~~19, wherein the component B is melt kneaded in an amount corresponding to 0.5 to 100 equivalents of a carbodiimide group based on 1 equivalent of the carboxyl group of the polyester (component A).