CLAIMS

1. A method for producing a block copolymer, the method comprising:

a step (A) of polymerizing a vinyl aromatic monomer in a mixed solvent comprising at least one nonpolar solvent selected from methylcyclohexane and methylcyclopentane and an aprotic polar solvent by using an anionic polymerization initiator, at -5°C to 35°C; and

a step (B) of adding a conjugated diene monomer for further polymerization at -5°C to 35°C after the step (A), wherein

the aprotic polar solvent amount is 5 to 20 parts by weight with respect to 100 parts by weight of the at least one nonpolar solvent selected from methylcyclohexane and methylcyclopentane.

2. A method for producing a block copolymer, the method comprising:

a step (A) of polymerizing a vinyl aromatic monomer in a mixed solvent comprising at least one nonpolar solvent selected from methylcyclohexane and methylcyclopentane and an aprotic polar solvent by using an anionic polymerization initiator, at -5°C to 35°C;

a step (B) of adding a conjugated diene monomer for further polymerization at -5°C to 35°C after the step (A); and

a step (C) of adding a vinyl aromatic monomer for further polymerization at -5°C to 35°C after the step (B), wherein

the aprotic polar solvent amount is 5 to 20 parts by weight with respect to 100 parts by weight of the at least one nonpolar solvent selected from methylcyclohexane and methylcyclopentane.

3. The method for producing a block copolymer according to claim 1 or 2, wherein the aprotic polar solvent is an ether solvent.

4. The method for producing a block copolymer according to claim 3, wherein the ether solvent is tetrahydrofuran.

5. The method for producing a block copolymer according to any one of claims 1 to 4, wherein the anionic polymerization initiator is an alkyllithium.

6. The method for producing a block copolymer according to any one of claims 1 to 5, wherein the vinyl aromatic monomer is a styrene-based monomer.

7. The method for producing a block copolymer according to claim 6, wherein the styrene-based monomer is styrene.

8. The method for producing a block copolymer according to any one of claims 1 to 7, wherein the conjugated diene monomer is 1,3-butadiene.