CLAIMS

1. A block copolymer (A) comprising: a vinyl alcohol-based polymer block (b); and an ionic polymer block (c) containing a monomer unit with an ionic group forming a salt and a vinyl alcohol-based monomer unit, wherein

the ionic group is a carboxylic acid group, a sulfonic acid group, or an ammonium group,

the vinyl alcohol-based polymer block (b) has a number-average molecular weight (Mn_b) from 15,000 to 220,000,

the ionic polymer block (c) has a content of the vinyl alcohol-based monomer unit from 5 to 95 mol% based on the total monomer units,

the block copolymer (A) has a number-average molecular weight (Mn_A) from 20,000 to 440,000, and

a ratio (Mn_b/Mn_A) of the number-average molecular weight (Mn_b) to the number-average molecular weight (Mn_A) is from 0.1 to 0.9.

2. The block copolymer (A) according to Claim 1, wherein the ionic group is a carboxylic acid group.

3. The block copolymer (A) according to Claim 1 or 2, wherein a counterion of the ionic group is an ion of an element in Group 1, 2, 12, 13, or 17 of the periodic table.

4. The block copolymer (A) according to any one of Claims 1 through 3, wherein the block copolymer (A) has a content (J_A) of the monomer unit with an

ionic group forming a salt from 2 to 90 mol% based on the total monomer units.

5. The block copolymer (A) according to any one of Claims 1 through 4, wherein the ionic polymer block (c) has a content (K_c) of the monomer unit with an ionic group forming a salt from 5 to 95 mol% based on the total monomer units.

6. The block copolymer (A) according to any one of Claims 1 through 5, wherein the block copolymer (A) has a degree of saponification from 88 to 99.99 mol%.

7. The block copolymer (A) according to any one of Claims 1 through 6, wherein the block copolymer (A) has a molecular weight distribution (Mw_A/Mn_A) from 1.05 to 1.95.

8. The block copolymer (A) according to any one of Claims 1 through 7, wherein the block copolymer (A) is biodegradable.

9. The block copolymer (A) according to any one of Claims 1 through 8, wherein an amount of deionized water absorbed per 0.1 g of the block copolymer (A) at 20°C is 20 g or more.

10. The block copolymer (A) according to any one of Claims 1 through 9, wherein an amount of a 0.9 mass% aqueous sodium chloride solution absorbed per 1 g of the block copolymer (A) at 20°C is 20 g or more.

11. The block copolymer (A) according to any one of Claims 1 through 10, wherein, when the block copolymer (A) is dissolved in water at 95°C, a soluble amount is 95 mass% or more.

12. The block copolymer (A) according to Claim 11, wherein, when the block copolymer (A) is dissolved in water at 20°C, a soluble amount is 95 mass% or more.

13. An absorber comprising the block copolymer (A) according to any one of Claims 1 through 12.

14. The absorber according to Claim 13, wherein the absorber is in the form of particles.

15. An absorbent article comprising the absorber according to Claim 13 or 14.

16. The absorbent article according to Claim 15, wherein the absorbent article is used for a sanitary, commodity, construction, civil engineering, industrial, agricultural, medical, or food application.

17. A method for producing the block copolymer (A) according to any one of Claims 1 through 12, the method essentially comprising:

a polymerization step of performing polymerization of a vinyl ester monomer and copolymerization of a vinyl ester monomer and an ionic monomer

with an ionic group or a derivative thereof by controlled radical polymerization in the presence of a radical polymerization initiator and a control agent to obtain a vinyl ester-based block copolymer having a vinyl ester polymer block (b1) and an ionic polymer block (c1) containing a vinyl ester monomer unit and an ionic monomer unit; and

a saponification step of saponifying vinyl ester monomer units in the vinyl ester-based block copolymer obtained in the polymerization step to form vinyl alcohol monomer units, and

the method optionally comprising a salt formation step of causing the ionic monomer unit to form a salt.

18. The method for producing the block copolymer (A) according to Claim 17, wherein the control agent is an organic cobalt complex.