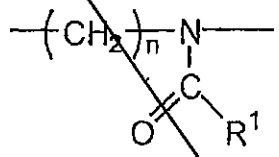
CLAIMS

1. An organopolysiloxane comprising a poly(N-acylalkyleneimine) segment having a repeating unit represented by the following general formula (1):



(1)

wherein R^1 represents a hydrogen atom or an alkyl group, an aralkyl group, or an aryl group each having 1 to 22 carbon atoms, and n is 2 or 3, wherein said segment is bound to each of at least two silicon atoms of an organopolysiloxane segment as a main chain via an alkylene group comprising a hetero atom, and wherein

the number-average molecular weight of the poly(N-acylalkyleneimine) segment is 800 to 1600,

the mass ratio (a/b) of the organopolysiloxane segment (a) as a main chain and the poly(N-acylalkyleneimine) segment (b) is 65/35 to 82/18, and

the weight-average molecular weight of the organopolysiloxane segment as a main chain is 10,000 to 100,000 and wherein

the weight-average molecular weight (MWg) of an organopolysiloxane segment between adjacent poly(N-acylalkyleneimine) segments is 1500 to 3500.

2. The organopolysiloxane according to claim 1, wherein a poly(N-acylalkyleneimine) segment is bound to each of at least one silicon atoms that are not either terminus via an alkylene group.

3. The organopolysiloxane according to claim 1, wherein a poly(N-acylalkyleneimine) segment is bound to each of at least two silicon atoms that are not either terminus via an alkylene group.

4. The organopolysiloxane according to claim 1, wherein the weight-average molecular weight (MWg) of an organopolysiloxane segment between adjacent poly(N-acylalkyleneimine) segments is 1600 to 3200.

5. The organopolysiloxane according to claim 1, wherein the weight-average molecular weight (MWg) of an organopolysiloxane segment between adjacent poly(N-acylalkyleneimine) segments is 1700 to 3000.

6. The organopolysiloxane according to claim 1, wherein the mass ratio (a/b) of the organopolysiloxane segment (a) and the poly(N-acylalkyleneimine) segment (b) is 68/32 to 80/20.

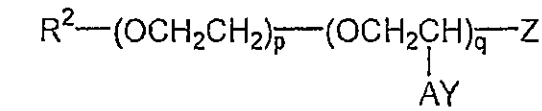
7. The organopolysiloxane according to claim 1, wherein the mass ratio (a/b) of the organopolysiloxane segment (a) and the poly(N-acylalkyleneimine) segment (b) is 70/30 to 79/21.

8. The organopolysiloxane according to claim 1, wherein R^1 represents a methyl group, an ethyl group, a n-propyl group or an isopropyl group.

9. A hair cosmetic comprising the organopolysiloxane according to claim 1.

10. The hair cosmetic according to claim 9 further comprising one or more organic solvents selected from the group consisting of the following (b1) to (b5):

(b1) a compound represented by the general formula (2)



(2)

wherein R^2 represents a hydrogen atom, an alkyl group having 1 to 6 carbon atoms, or a group R^3-Ph-R^4-, wherein R^3 represents a hydrogen atom, a methyl group, or a methoxy group; R^4 represents a bond or a saturated or unsaturated divalent hydrocarbon group

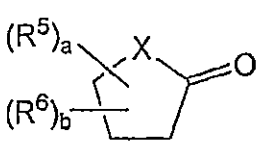
having 1 to 3 carbon atoms; and Ph represents a paraphenylene group, A represents a bond or a saturated divalent hydrocarbon group having 1 to 4 carbon atoms, Y and Z each independently represent a hydrogen atom or a hydroxy group, and p and q each independently are an integer of 0 to 5, provided that when p = q = 0, Z represents a hydroxy group, and R^2 is not either a hydrogen atom or a group R^3-Ph-;

(b2) N-alkylpyrrolidone or N-alkenylpyrrolidone in which an alkyl group or an alkenyl group having 1 to 18 carbon atoms binds to a nitrogen atom;

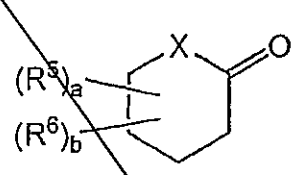
(b3) an alkylene carbonate having 2 to 4 carbon atoms;

(b4) a polypropylene glycol having a number-average molecular weight of 100 to 1000; and

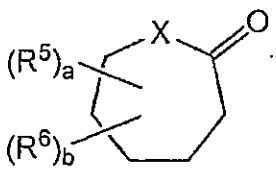
(b5) a lactone or a cyclic ketone represented by the general formula (3), (4), or (5):



(3)



(4)



(5)

wherein X represents a methylene group or an oxygen atom, R^5 and R^6 represent substituents different from each other, and a and b each independently are 0 or 1.

11. The hair cosmetic according to claim 10, wherein the organic solvent is at least one selected from dipropylene glycol, 1,3-butanediol, benzyl alcohol, phenoxyethanol, 2-benzyloxyethanol, propylene carbonate, and polypropylene glycol (number-average molecular weight, 300 to 500).

12. The hair cosmetic according to claim 10, wherein the organic solvent is a lower alcohol having 1 to 6 carbon atoms.

13. The hair cosmetic according to claim 10 comprising an organic carboxylic acid which may have a hydroxy group or a salt thereof.

14. The hair cosmetic according to claim 13, wherein the organic carboxylic acid which may have a hydroxy group is a hydroxycarboxylic acid having 2 to 6 carbon atoms.

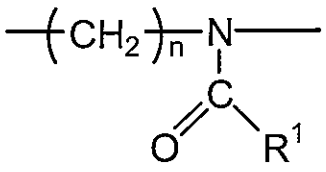
15. The hair cosmetic according to any one of claims 9 to 14 further comprising a set polymer.

16. The hair cosmetic according to claim 13 or 14, wherein the pH is 2.5 to 4.5 at 25°C when diluted 20-fold by mass with water.

17. The hair cosmetic according to claim 9, which is a semisolid styling composition.

CLAIMS

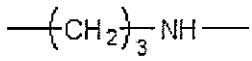
1. An organopolysiloxane comprising a poly(N-acylalkyleneimine) segment having a repeating unit represented by the following general formula (1):



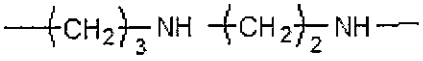
(1)

wherein R^1 represents a hydrogen atom or an alkyl group, an aralkyl group, or an aryl group each having 1 to 22 carbon atoms, and n is 2 or 3, wherein said segment is bound to each of at least two silicon atoms of an organopolysiloxane segment as a main chain via an alkylene group comprising a hetero atom,

wherein the alkylene group comprising a hetero atom is a group represented by the following formula (i) or (ii):



(i)



(ii)

wherein the number-average molecular weight of the poly(N-acylalkyleneimine) segment is 800 to 1600,

wherein the mass ratio (a/b) of the organopolysiloxane segment (a) as a main chain and the poly(N-acylalkyleneimine) segment (b) is 65/35 to 82/18,

wherein the weight-average molecular weight of the organopolysiloxane segment as a main chain is 10,000 to 100,000,

and wherein the weight-average molecular weight (MWg) of an organopolysiloxane segment between adjacent poly(N-acylalkyleneimine) segments is 1500 to 3500.

2. A hair cosmetic comprising the organopolysiloxane according to claim 1.

3. The hair cosmetic according to claim 2, further comprising a water and/or a lower alcohol having 1 to 6 carbon atoms.

4. The hair cosmetic according to claim 2 or 3, further comprising a set polymer.

5. The hair cosmetic according to any one of claims 2 to 4, which is a semisolid hair styling composition.