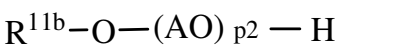
CLAIMS

1. A hydration heat suppressant for a hydraulic composition, the hydration heat suppressant comprising:

(A) at least one type of (poly)glycoside having an alkyl group with 8 or more and 20 or less carbons or an alkenyl group with 8 or more and 20 or less carbons, and having a degree of sugar condensation of 1 or more and 5 or less (hereinafter, referred to as a component (A)); and

(B2) at least one type of nonionic surfactant having an HLB value of 2 or higher and 11 or lower and selected from nonionic surfactants represented by the following general formula (B21), nonionic surfactants represented by the following general formula (B22), nonionic surfactants represented by the following general formula (B23) and nonionic surfactants represented by the following general formula (B24) (hereinafter, referred to as a component (B2)):



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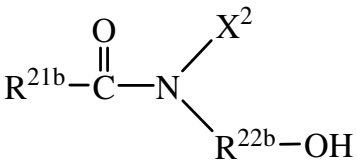

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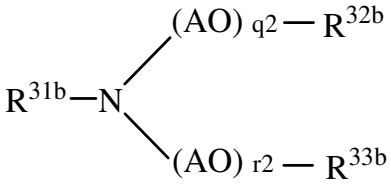

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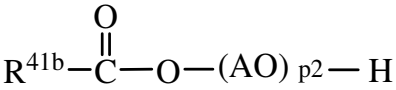


(B24)

wherein R^{11b} and R^{31b} are each a group selected from alkyl groups having 8 or more and 22 or less carbons, alkenyl groups having 8 or more and 22 or less carbons, aralkyl groups having 8 or more and 22 or less carbons, and substituted aryl groups having 8 or more and 22 or less carbons;

R^{21b} and R^{41b} are each a group selected from alkyl groups having 7 or more and 21 or less carbons, alkenyl groups having 7 or more and 21 or less carbons, aralkyl groups having 7 or more and 21 or less carbons, and substituted aryl groups having 7 or more and 21 or less carbons;

R^{22b} is an alkylene group having 2 or more and 4 or less carbons;

X^2 is a group selected from alkyl groups having 1 or more and 3 or less carbons and groups represented by $-R^{22b}-OH$;
R^{32b} and R^{33b} are each a hydrogen atom or an alkyl group having 1 or more and 3 or less carbons;
AO is an alkyleneoxy group having 2 or more and 4 or less carbons;
p2 is a number of 0.5 or more and 20 or less; and
q2 and r2 are each a number of 0 or more, and the sum of q2 and r2 is a number of 0.5 or more and 20 or less.

2. The hydration heat suppressant for a hydraulic composition according to claim 1, further comprising a defoaming agent (C).

3. The hydration heat suppressant for a hydraulic composition according to claim 1 or 2, wherein a molar ratio between the component (A) and the component (B2), (A)/(B2), is 0.10 or higher and 10.0 or lower.

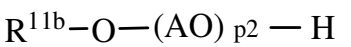
4. The hydration heat suppressant for a hydraulic composition according to any one of claims 1 to 3, wherein a mass ratio between the component (A) and the component (B2), (A)/(B2), is 0.05 or higher and 4.0 or lower.

5. A hydraulic composition, comprising:
a hydraulic powder;

water;

(A) at least one type of (poly)glycoside having an alkyl group with 8 or more and 20 or less carbons or an alkenyl group with 8 or more and 20 or less carbons, and having a degree of sugar condensation of 1 or more and 5 or less (referred to as a component (A)); and

(B2) at least one type of nonionic surfactant having an HLB value of 2 or higher and 11 or lower and selected from nonionic surfactants represented by the following general formula (B21), nonionic surfactants represented by the following general formula (B22), nonionic surfactants represented by the following general formula (B23) and nonionic surfactants represented by the following general formula (B24) (hereinafter, referred to as a component (B2)):



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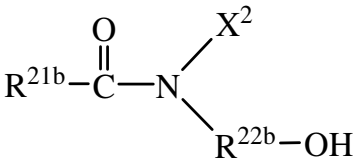

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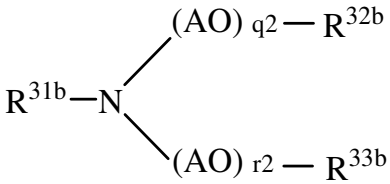

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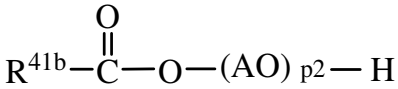


(B24)

wherein R^{11b} and R^{31b} are each a group selected from alkyl groups having 8 or more and 22 or less carbons, alkenyl groups having 8 or more and 22 or less carbons, aralkyl groups having 8 or more and 22 or less carbons, and substituted aryl groups having 8 or more and 22 or less carbons;

R^{21b} and R^{41b} are each a group selected from alkyl groups having 7 or more and 21 or less carbons, alkenyl groups having 7 or more and 21 or less carbons, aralkyl groups having 7 or more and 21 or less carbons, and substituted aryl groups having 7 or more and 21 or less carbons;

R^{22b} is an alkylene group having 2 or more and 4 or less carbons;

X^2 is a group selected from alkyl groups having 1 or more and 3 or less carbons and groups represented by $-R^{22b}-OH$;
R^{32b} and R^{33b} are each a hydrogen atom or an alkyl group having 1 or more and 3 or less carbons;
AO is an alkyleneoxy group having 2 or more and 4 or less carbons;
p2 is a number of 0.5 or more and 20 or less; and
q2 and r2 are each a number of 0 or more, and the sum of q2 and r2 is a number of 0.5 or more and 20 or less,

wherein a total content of the component (A) and the component (B1) is 0.05 parts by mass or higher and 4.0 parts by mass or lower per 100 parts by mass of the hydraulic powder.

6. The hydraulic composition according to claim 5, further comprising a defoaming agent (C).

7. The hydraulic composition according to claim 5 or 6, further comprising a dispersant (D).

8. The hydraulic composition according to claim 7, wherein (D) is one or more dispersants selected from polycarboxylic acid-based copolymers, ligninsulfonic acid-based copolymers and naphthalenesulfonic acid-based copolymers.

9. The hydraulic composition according to any one of claims 5 to 8, wherein a molar ratio between the component (A) and the component (B2), (A)/(B2), is 0.1 or higher and 10.0 or lower.

10. The hydraulic composition according to any one of claims 5 to 9, wherein a mass ratio between the component (A) and the component (B2), (A)/(B2), is 0.05 or higher and 4.0 or lower.

11. The hydraulic composition according to any one of claims 5 to 10, wherein the hydraulic powder is a hydraulic powder having a content of a gypsum of 20% by mass or lower.

12. The hydraulic composition according to any one of claims 5 to 11, wherein a total content of the component (A) and the component (B2) is 0.1 parts by mass or higher and 2.0 parts by mass or lower per 100 parts by mass of the hydraulic powder.

13. A method for producing a hydraulic composition, the method comprising mixing a hydraulic powder, water, the following component (A) and the following component (B2):

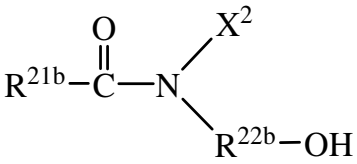
component (A): at least one type of (poly)glycoside having an alkyl group with 8 or more and 20 or less carbons or an alkenyl group with 8 or more and 20 or less

carbons, and having a degree of sugar condensation of 1 or more and 5 or less; and

component (B2): at least one type of nonionic surfactant having an HLB value of 2 or higher and 11 or lower and selected from nonionic surfactants represented by the following general formula (B21), nonionic surfactants represented by the following general formula (B22), nonionic surfactants represented by the following general formula (B23) and nonionic surfactants represented by the following general formula (B24):



(B21)



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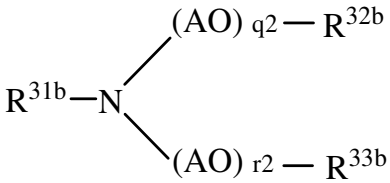

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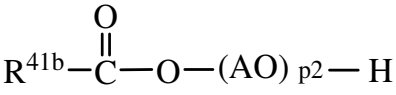


(B24)

wherein R^{11b} and R^{31b} are each a group selected from alkyl groups having 8 or more and 22 or less carbons, alkenyl groups having 8 or more and 22 or less carbons, aralkyl

groups having 8 or more and 22 or less carbons, and substituted aryl groups having 8 or more and 22 or less carbons;

R^{21b} and R^{41b} are each a group selected from alkyl groups having 7 or more and 21 or less carbons, alkenyl groups having 7 or more and 21 or less carbons, aralkyl groups having 7 or more and 21 or less carbons, and substituted aryl groups having 7 or more and 21 or less carbons;

R^{22b} is an alkylene group having 2 or more and 4 or less carbons;

X^2 is a group selected from alkyl groups having 1 or more and 3 or less carbons and groups represented by $-R^{22b}-OH$;

R^{32b} and R^{33b} are each a hydrogen atom or an alkyl group having 1 or more and 3 or less carbons;

AO is an alkyleneoxy group having 2 or more and 4 or less carbons;

p2 is a number of 0.5 or more and 20 or less; and

q2 and r2 are each a number of 0 or more, and the sum of q2 and r2 is a number of 0.5 or more and 20 or less,

wherein the component (A) and the component (B2) are mixed so that a total content of the component (A) and the component (B2) is 0.05 parts by mass or higher and 4.0 parts by mass or lower per 100 parts by mass of the hydraulic powder.

14. The method for producing a hydraulic composition according to claim 13, wherein a defoaming agent (C) is further mixed.

15. The method for producing a hydraulic composition according to claim 13 or 14, wherein the component (A) and the component (B2) are mixed so that a molar ratio between the component (A) and the component (B2), (A)/(B2), is 0.1 or higher and 10.0 or lower.

16. The method for producing a hydraulic composition according to any one of claims 13 to 15, wherein the component (A) and the component (B2) are mixed so that a mass ratio between the component (A) and the component (B2), (A)/(B2), is 0.05 or higher and 4.0 or lower.

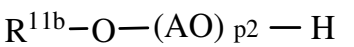
17. The method for producing a hydraulic composition according to any one of claims 13 to 16, wherein the hydraulic powder is a hydraulic powder having a content of a gypsum of 20% by mass or lower.

18. The method for producing a hydraulic composition according to any one of claims 13 to 17, wherein the component (A) and the component (B2) are mixed so that a total content of the component (A) and the component (B2) is 0.1 parts by mass or higher and 2.0 parts by mass or lower per 100 parts by mass of the hydraulic powder.

19. A method for suppressing hydration heat of a hydraulic composition, the method comprising adding, to a hydraulic composition comprising water and a hydraulic powder, the following component (A) and the following component (B2) in a total amount of the component (A) and the component (B2) of 0.05 parts by mass or more and 4.0 parts by mass or less per 100 parts by mass of the hydraulic powder:

component (A): at least one type of (poly)glycoside having an alkyl group with 8 or more and 20 or less carbons or an alkenyl group with 8 or more and 20 or less carbons, and having a degree of sugar condensation of 1 or more and 5 or less; and

component (B2): at least one type of nonionic surfactant having an HLB value of 2 or higher and 11 or lower and selected from nonionic surfactants represented by the following general formula (B21), nonionic surfactants represented by the following general formula (B22), nonionic surfactants represented by the following general formula (B23) and nonionic surfactants represented by the following general formula (B24):



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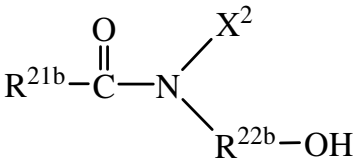

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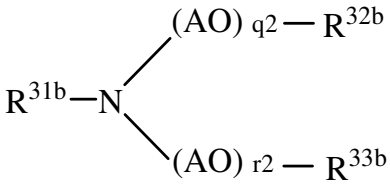

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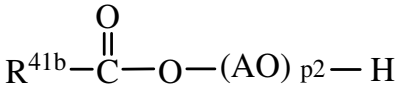

(B24)

wherein R^{11b} and R^{31b} are each a group selected from alkyl groups having 8 or more and 22 or less carbons, alkenyl groups having 8 or more and 22 or less carbons, aralkyl groups having 8 or more and 22 or less carbons, and substituted aryl groups having 8 or more and 22 or less carbons;

R^{21b} and R^{41b} are each a group selected from alkyl groups having 7 or more and 21 or less carbons, alkenyl groups having 7 or more and 21 or less carbons, aralkyl groups having 7 or more and 21 or less carbons, and substituted aryl groups having 7 or more and 21 or less carbons;

R^{22b} is an alkylene group having 2 or more and 4 or less carbons;

X^2 is a group selected from alkyl groups having 1 or more and 3 or less carbons and groups represented by $-R^{22b}-OH$;
R^{32b} and R^{33b} are each a hydrogen atom or an alkyl group having 1 or more and 3 or less carbons;
AO is an alkyleneoxy group having 2 or more and 4 or less carbons;
p2 is a number of 0.5 or more and 20 or less; and
q2 and r2 are each a number of 0 or more, and the sum of q2 and r2 is a number of 0.5 or more and 20 or less.

20. The method for suppressing hydration heat of a hydraulic composition according to claim 19, wherein at least one of the component (A) and the component (B2) is used in a liquid state.

21. The method for suppressing hydration heat of a hydraulic composition according to claim 19 or 20, wherein at least one of the component (A) and the component (B2) is dissolved in water or an organic solvent and then used.

22. The method for suppressing hydration heat of a hydraulic composition according to any one of claims 19 to 21, wherein the component (A) and the component (B2) are used in a molar ratio (A)/(B2) of 0.1 or higher and 10.0 or lower.

23. The method for suppressing hydration heat of a hydraulic composition according to any one of claims 19 to 22, wherein the component (A) and the component (B2) are used in a mass ratio (A)/(B2) of 0.05 or higher and 4.0 or lower.

24. The method for suppressing hydration heat of a hydraulic composition according to any one of claims 19 to 23, wherein the hydraulic powder is a hydraulic powder having a content of a gypsum of 20% by mass or lower.

25. The method for suppressing hydration heat of a hydraulic composition according to any one of claims 19 to 24, wherein the component (A) and the component (B2) are added in a total amount of the component (A) and the component (B2) of 0.1 parts by mass or more and 2.0 parts by mass or less per 100 parts by mass of the hydraulic powder.