CLAIMS

1. A polishing liquid comprising: abrasive grains; at least one hydroxy acid component selected from the group consisting of a hydroxy acid and a salt thereof; and a compound Z, wherein

the compound Z has a hydrocarbon group which may be substituted and a polyoxyalkylene group, and

a Z value represented by General Formula (1) below is 20 or more:

$$Z = 0.1 \times a^2 \times b/c \qquad \ldots (1)$$

[in Formula (1), "a" represents the number of carbon atoms of the hydrocarbon group, "b" represents the total number of oxyalkylene groups in the compound Z, and "c" represents an HLB value of the compound Z.]

2. The polishing liquid according to claim 1, wherein a zeta potential of the abrasive grains is positive.

3. The polishing liquid according to claim 1 or 2, wherein the abrasive grains contain a cerium oxide.

4. The polishing liquid according to any one of claims 1 to 3, wherein the abrasive grains contain cerium hydroxide.

5. The polishing liquid according to any one of claims 1 to 4, wherein the total number of a carboxy group and a carboxylate group in the hydroxy acid component is 1.

6. The polishing liquid according to any one of claims 1 to 5, wherein the number of a hydroxyl group in the hydroxy acid component is 1 or 2.

7. The polishing liquid according to any one of claims 1 to 5,

wherein the number of a hydroxyl group in the hydroxy acid component is 2 or more.

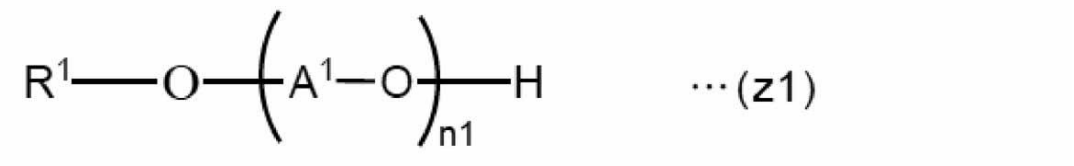
8. The polishing liquid according to any one of claims 1 to 7, wherein the number of carbon atoms of the hydrocarbon group is 18 or more.

9. The polishing liquid according to any one of claims 1 to 8, wherein the HLB value of the compound Z is 8.0 or more.

10. The polishing liquid according to any one of claims 1 to 8, wherein the HLB value of the compound Z is 14.0 or more.

11. The polishing liquid according to any one of claims 1 to 10, wherein the compound Z contains a compound represented by General Formula (z1) below:

[Chemical Formula 1]



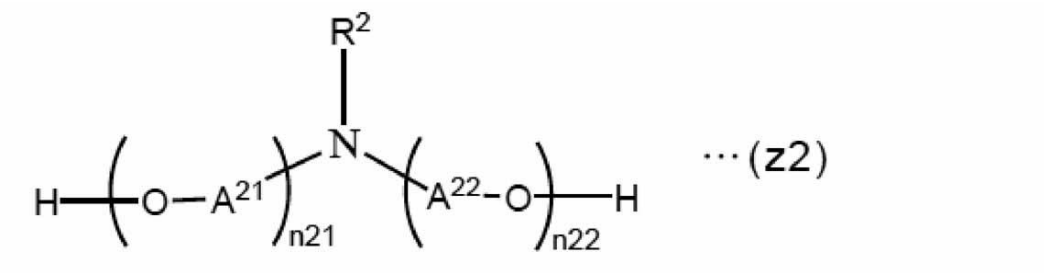
[in Formula (z1), A^1 represents an alkylene group, R^1 represents the hydrocarbon group, and n1 represents an integer of 2 or more.]

12. The polishing liquid according to claim 11, wherein the hydrocarbon group of the compound represented by General Formula (z1) is an aryl group having a plurality of aromatic rings.

13. The polishing liquid according to any one of claims 1 to 12, wherein the compound Z contains a compound having a nitrogen atom to which the hydrocarbon group and the polyoxyalkylene group are bonded.

14. The polishing liquid according to any one of claims 1 to 13, wherein the compound Z contains a compound represented by General Formula (z2) below:

[Chemical Formula 2]



[in Formula (z2), A^{21} and A^{22} each independently represent an alkylene group, R^2 represents the hydrocarbon group, and n21 and n22 each independently represent an integer of 2 or more.]

15. The polishing liquid according to claim 14, wherein the hydrocarbon group of the compound represented by General Formula (z2) is an alkyl group.

16. A polishing liquid set comprising constituent components of the polishing liquid according to any one of claims 1 to 15 separately stored as a first liquid and a second liquid, wherein

the first liquid contains the abrasive grains, and the second liquid contains the hydroxy acid component and the compound Z.

17. A polishing method comprising a polishing step of polishing a surface to be polished by using the polishing liquid according to any one of claims 1 to 13 or a polishing liquid obtained by mixing the first liquid and the second liquid of the polishing liquid set according to claim 16.

18. The polishing method according to claim 17, wherein the surface to be polished contains silicon oxide.

19. The polishing method according to claim 18, wherein the surface to be polished further contains silicon nitride.