

83

an ammonium group, a sulfonium group, a carbonate group ($-\text{O}-\text{CO}-\text{O}-$) (for example, a cyclic carbonic ester structure and the like), and a group formed by combining two or more thereof, and particularly preferably an alcoholic hydroxy group, a cyano group, a lactone group, a sultone group, or a group which includes a cyanolactone structure.

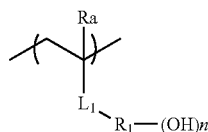
When a repeating unit which is provided with an alcoholic hydroxy group is further contained in the resin, it is possible to further improve the exposure latitude (EL) of the composition which includes a resin.

When a repeating unit which is provided with a cyano group is further contained in the resin, it is possible to further improve the sensitivity of a composition which includes a resin.

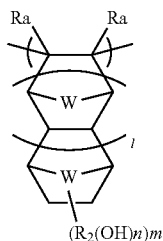
When a repeating unit which is provided with a lactone group is further contained in a resin, it is possible to further improve the dissolution contrast with respect to the developer which includes an organic solvent. In addition, by doing this, it is also possible to further improve the dry etching resistance, the coating property, and the adhesion with a substrate of the composition which includes a resin.

When a repeating unit which is provided with a group which includes a lactone structure which has a cyano group is further contained in the resin, it is possible to further improve the dissolution contrast with respect to a developer which includes an organic solvent. In addition, by doing this, it is also possible to further improve the sensitivity, the dry etching resistance, the coating property, and the adhesion with a substrate of the composition which includes a resin. In addition, by doing this, it is possible to place the functions which are respectively provided by a cyano group and a lactone group on a single repeating unit and it is also possible to further increase the degree of freedom in terms of the design of the resin.

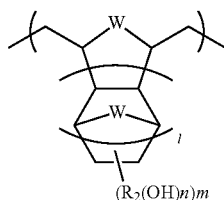
In a case where the polar group which the repeating unit (c) has is an alcoholic hydroxy group, it is preferably represented by at least one selected from a group formed of General Formulas (I-1H) to (I-10H) below. In particular, the polar group is more preferably represented by at least one selected from a group consisting of General Formulas (I-1H) to (I-3H) below and it is even more preferably represented by General Formula (I-1H) below.



(I-1H)



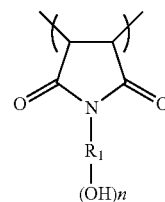
(I-2H)



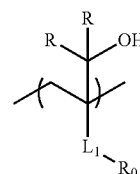
(I-3H)

84

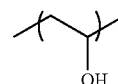
-continued



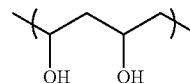
(I-4H)



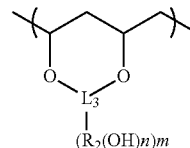
(I-5H)



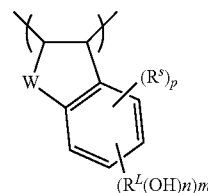
(I-6H)



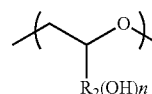
(I-7H)



(I-8H)



(I-9H)



(I-10H)

In the formula, Ras each independently represents a hydrogen atom, an alkyl group, or a group which is represented by $-\text{CH}_2-\text{O}-\text{Ra}_2$. Here, Ra_2 represents a hydrogen atom, an alkyl group, or an acyl group.

R_1 represents an $(n+1)$ -valent organic group.

R_2 each independently represents a single bond or an $(n+1)$ -valent organic group in a case where $m \geq 2$.

W represents a methylene group, an oxygen atom, or a sulfur atom.

n and m represent an integer of 1 or more. Here, in a case where R_2 represents a single bond in General Formula (I-2H), (I-3H), or (I-8H), n is 1.

l represents an integer of 0 or more.

L_1 represents a linking group which is represented by $-\text{COO}-$, $-\text{OCO}-$, $-\text{CONH}-$, $-\text{O}-$, $-\text{Ar}-$, $-\text{SO}_3-$, or $-\text{SO}_2\text{NH}-$. Here, Ar represents a divalent aromatic ring group.

R_s each independently represents a hydrogen atom or an alkyl group.

R_0 represents a hydrogen atom or an organic group.

L_3 represents an $(m+2)$ -valent linking group.