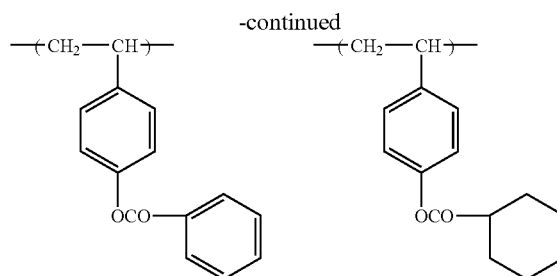
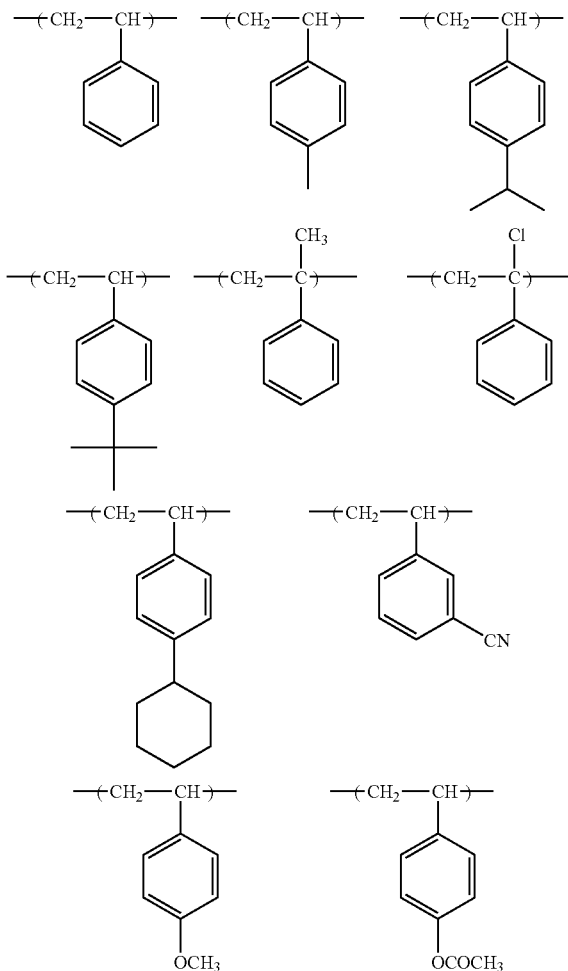


[0078] In the acid-stable group represented by W, the alkyl group is preferably an alkyl group having a carbon number of 1 to 4, such as methyl group, ethyl group, propyl group, n-butyl group, sec-butyl group and tert-butyl group; the cycloalkyl group is preferably a cycloalkyl group having a carbon number of 3 to 10, such as cyclopropyl group, cyclobutyl group, cyclohexyl group and adamantyl group; the alkenyl group is preferably an alkenyl group having a carbon number of 2 to 4, such as vinyl group, propenyl group, allyl group and butenyl group; the alkenyl group is preferably an alkenyl group having a carbon number of 2 to 4, such as vinyl group, propenyl group, allyl group and butenyl group; and the aryl group is preferably an aryl group having a carbon number of 6 to 14, such as phenyl group, xylyl group, tolyl group, cumenyl group, naphthyl group and anthracenyl group. W may be present at any position on the benzene ring but is preferably present at the meta-position or para-position, more preferably at the para-position, of the styrene skeleton.

[0079] Specific examples of the repeating unit represented by formula (A4) are set forth below, but the present invention is not limited thereto.



[0080] The resin (A-1) or (A-2) is a resin of which solubility in an alkali developer increases under the action of an acid (acid-decomposable resin), and contains a group capable of decomposing under the action of an acid to produce an alkali-soluble group (acid-decomposable group), in an arbitrary repeating unit.

[0081] As described above, the acid-decomposable group may be contained in the repeating unit represented by formula (1a), (1b) or (A2) or in other repeating unit.

[0082] Examples of the acid-decomposable group include, in addition to those described above, a group represented by $-C(=O)-X_1-R_0$.

[0083] In the formula above, R_0 represents, for example, a tertiary alkyl group such as tert-butyl group and tert-amyl group, a 1-alkoxyethyl group such as isobornyl group, 1-ethoxyethyl group, 1-butoxyethyl group, 1-isobutoxyethyl group and 1-cyclohexyloxyethyl group, an alkoxymethyl group such as 1-methoxymethyl group and 1-ethoxymethyl group, a 3-oxoalkyl group, a tetrahydropyranyl group, a tetrahydrofuran group, a trialkylsilyl ester group, a 3-oxo-cyclohexyl ester group, a 2-methyl-2-adamantyl group or a mevalonic lactone group. X_1 represents an oxygen atom, a sulfur atom, $-NH-$, $-NHSO_2-$ or $-NHSO_2NH-$.

[0084] The content of the repeating unit represented by formula (1a) or (1b) in the resin (A-1) or (A-2) is preferably from 10 to 60 mol %, more preferably from 15 to 50 mol %, still more preferably from 20 to 40 mol %, based on all repeating units.

[0085] The content of the repeating unit represented by formula (A1) in the resin (A-1) is preferably from 40 to 90 mol %, more preferably from 50 to 85 mol %, still more preferably from 55 to 80 mol %, based on all repeating units.

[0086] The content of the repeating unit represented by formula (A2) in the resin (A-2) is preferably from 5 to 60 mol %, more preferably from 10 to 50 mol %, still more preferably from 20 to 40 mol %, based on all repeating units.

[0087] The resins (A-1) and (A-2) each may further contain a repeating unit represented by formula (4), and this is preferred from the standpoint of, for example, enhancing the film quality or suppressing the film loss in the unexposed area. The content of the repeating unit represented by formula (4) is preferably from 0 to 50 mol %, more preferably from 0 to 40 mol %, still more preferably from 0 to 30 mol %, based on all repeating units in each resin.

[0088] Also, in each of the resins (A-1) and (A-2), other appropriate polymerizable monomer may be copolymerized to introduce an alkali-soluble group such as phenolic hydroxyl group or carboxyl group for maintaining good developability with an alkali developer, or other hydropho-