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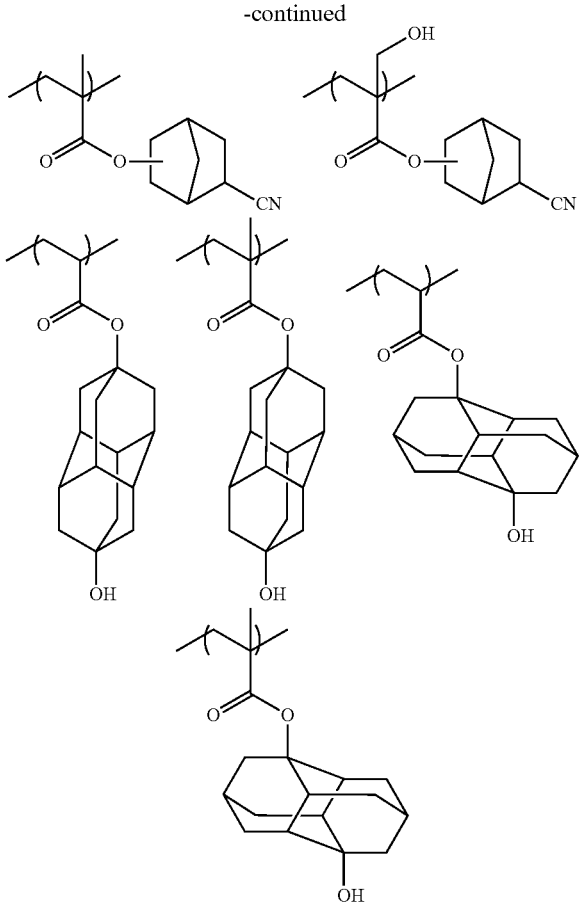

It is preferable that the resin (Ab) has a repeating unit having an alkali-soluble group. Examples of the alkali-soluble group include a carboxyl group, a sulfonamido group, a sulfonylimide group, a bisulfonylimide group, and an aliphatic alcohol with the Ua-position being substituted with an electron-withdrawing group (for example, a hexafluoroisopropanol group). The resin (Ab) more preferably has a repeating unit having a carboxyl group. By virtue of containing a repeating unit having an alkali-soluble group, the resolution increases in the usage of forming contact holes. As the repeating unit having an alkali-soluble group, all of a repeating unit in which an alkali-soluble group is directly bonded to the main chain of the resin, such as a repeating unit with an acrylic acid or a methacrylic acid, a repeating unit in which an alkali-soluble group is bonded to the main chain of the resin through a linking group, and a repeating unit in which an alkali-soluble group is introduced into the polymer chain terminal by using a polymerization initiator or a chain transfer agent containing an alkali-soluble group during the polymerization, are preferable. The linking group may have a cyclic hydrocarbon structure which is monocyclic or polycyclic. A repeating unit with an acrylic acid or a methacrylic acid is particularly preferable.

The content of the repeating units having an alkali-soluble group is preferably 0% to 20% by mole, more preferably 3% to 15% by mole, and still more preferably 5% to 10% by mole, with respect to all the repeating units in the resin (Ab).

Specific examples of the repeating unit having an alkali-soluble group are shown below, but the present invention is not limited thereto.

(in the formulae, Rx represents H, CH_3, CF_3, or CH_2OH)