



[0086] The ammonium salt (B) may be any of arbitrary combinations of cations with anions, both as exemplified above.

[0087] The ammonium salt (B) may be synthesized by any organic chemistry procedures well known to the artisan in the art. For example, the desired compound may be synthesized by mixing a cation-containing compound and an anion-containing compound in an organic solvent/water two-layer system, effecting ion exchange reaction therebetween, and extracting the organic layer. With respect to the ion exchange reaction, reference may be made to JP-A 2007-145797, for example. The cation moiety may be purchased in the market or synthesized by reaction of a tertiary amine compound with an alkyl halide, for example. The anion moiety may be purchased in the market or synthesized by any well-known procedures. In particular, with respect to the anion moiety of the compound having formula (5), reference may be made to JP-A 2007-145797 and JP-A 2009-258695, for example.

[0088] The resist composition of the invention is successful in improving several lithography properties, typically sensitivity and resolution while maintaining excellent LER.

[0089] Although the reason is not well understood, it is presumed that the addition of ammonium salt (B) has a good influence. Since the ammonium salt (B) has an anion structure which is a conjugated base of strong acid and a cation moiety which is a quaternary ammonium salt, it is not decomposed under the action of light or heat in the lithography process. As used herein, the strong acid refers to a compound having an acidity sufficient to cleave an acid labile group in the base resin. On the other hand, the PAG generates an acid upon exposure. It is believed that part of the generated acid undergoes salt exchange reaction with the ammonium salt (B). That is, the acid generated by the PAG acts on the ammonium salt at a different site, and the counter