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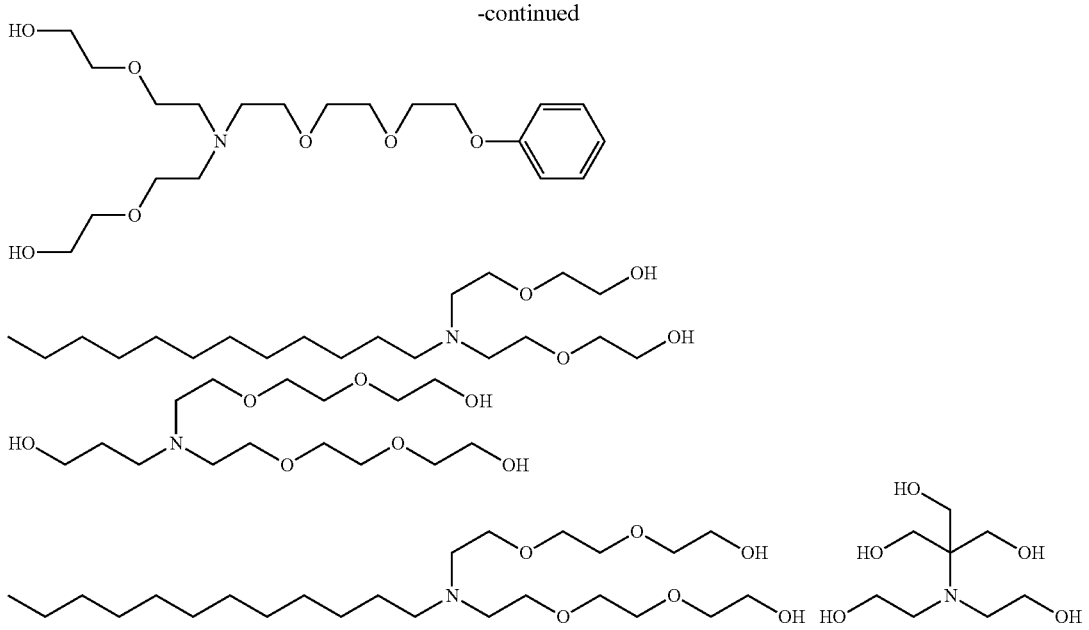

(2) Compound Having a Nitrogen-Containing Heterocyclic Structure

[0367] The nitrogen-containing heterocyclic ring may or may not have aromaticity, may contain a plurality of nitrogen atoms, and may further contain a heteroatom other than nitrogen. Specific examples of the compound include a compound having an imidazole structure (e.g., 2-phenylbenzimidazole, 2,4,5-triphenylimidazole), a compound having a piperidine structure [e.g., N-hydroxyethylpiperidine, bis(1,2,2,6,6-pentamethyl-4-piperidyl)sebacate], a compound having a pyridine structure (e.g., 4-dimethylaminopyridine), and a compound having an antipyrine structure (e.g., antipyrine, hydroxyantipyrine).

[0368] A compound having two or more ring structures is also suitably used. Specific examples thereof include 1,5-diazabicyclo[4.3.0]non-5-ene and 1,8-diazabicyclo[5.4.0]undec-7-ene.

(3) Phenoxy Group-Containing Amine Compound

[0369] The phenoxy group-containing amine compound is a compound where the alkyl group contained in an amine compound has a phenoxy group at the terminal opposite the N atom. The phenoxy group may have a substituent such as alkyl group, alkoxy group, halogen atom, cyano group, nitro group, carboxy group, carboxylic acid ester group, sulfonic acid ester group, aryl group, aralkyl group, acyloxy group and aryloxy group.

[0370] The compound preferably has at least one oxyalkylene chain between the phenoxy group and the nitrogen atom. The number of oxyalkylene chains in one molecule is preferably from 3 to 9, more preferably from 4 to 6. Among oxyalkylene chains, —CH_2CH_2O— is preferred.

[0371] Specific examples of the compound include 2-[2-{2-(2,2-dimethoxyphenoxyethoxy)ethyl}-bis-(2-methoxyethyl)]-amine and Compounds (C1-1) to (C3-3) illustrated in paragraph [0066] of U.S. Patent Application Publication No. 200710224539A1.

[0372] The phenoxy group-containing amine compound is obtained, for example, by reacting a primary or secondary amine having a phenoxy group with a haloalkyl ether under heating and after adding an aqueous solution of a strong base such as sodium hydroxide, potassium hydroxide and tetraalkylammonium, extracting the reaction product with an organic solvent such as ethyl acetate and chloroform. The phenoxy group-containing amine compound may be also obtained by reacting a primary or secondary amine with a haloalkyl ether having a phenoxy group at the terminal under heating and after adding an aqueous solution of a strong base such as sodium hydroxide, potassium hydroxide and tetraalkylammonium, extracting the reaction product with an organic solvent such as ethyl acetate and chloroform.

(4) Ammonium Salt

[0373] An ammonium salt is also appropriately used as the basic compound.

[0374] Examples of the anion of the ammonium salt include a halide, a sulfonate, a borate and a phosphate. Among these, a halide and a sulfonate are preferred.

[0375] The halide is preferably chloride, bromide or iodide.

[0376] The sulfonate is preferably an organic sulfonate having a carbon number of 1 to 20. Examples of the organic sulfonate include an alkylsulfonate having a carbon number of 1 to 20 and an arylsulfonate.

[0377] The alkyl group contained in the alkylsulfonate may have a substituent, and examples of the substituent include a fluorine atom, a chlorine atom, a bromine atom, an alkoxy group, an acyl group and an aryl group. Specific examples of the alkylsulfonate include methanesulfonate, ethanesulfonate, butanesulfonate, hexanesulfonate, octanesulfonate, benzylsulfonate, trifluoromethanesulfonate, pentafluoroethanesulfonate and nonafluorobutanesulfonate.