

ABSTRACT

A dry etching method including reacting silicon oxide with: gaseous hydrogen fluoride and a gaseous organic amine compound; a hydrogen fluoride salt of a gaseous organic amine compound; or gaseous hydrogen fluoride, a gaseous organic amine compound, and a hydrogen fluoride salt of a gaseous organic amine compound, wherein the organic amine compound is an organic amine mixture containing at least two compounds represented by the following formula (1):



wherein N is a nitrogen atom; R^1 is a C1-C10 hydrocarbon group optionally having a ring, a heteroatom, or a halogen atom; R^2 and R^3 are each a hydrogen atom or a C1-C10 hydrocarbon group optionally having a ring, a heteroatom, or a halogen atom,; provided that the hydrocarbon group, when it has a carbon number of 3 or more, may have a branched chain structure or a ring structure and that the heteroatom in the hydrocarbon group is a nitrogen atom, an oxygen atom, a sulfur atom, or a phosphorus atom; further, R^1 and R^2 , when both of them are hydrocarbon groups having a carbon number of 1 or more, may be directly bonded to each other to form a ring structure; further, R^1 or R^2 , which is directly bonded by a double bond to form a ring structure, may form an aromatic ring in the absence of R^3 ; and R^1 , R^2 , and R^3 may be hydrocarbon groups which are the same as or different from one another.

[No suitable figure]