

ABSTRACT

SURFACE TREATMENT METHOD OF WAFER AND COMPOSITION USED FOR
SAID METHOD

5 The present invention provides a novel composition for vapor treatment, which
exerts a water repellency imparting effect equivalent to that in the case of surface-treating a
Si element-containing wafer with a vapor of a conventional composition (in which many
kinds of water-repellent protective film-forming components are used), shows a good
chemical stability and uses fewer kinds of water-repellent protective film-forming
10 component, and a method of surface-treating a Si element-containing wafer by forming a
water-repellent protective film with the use of a vapor of the novel composition. More
specifically, the present invention provides a surface treatment method of a wafer having
an uneven pattern at a surface thereof and containing a Si element in at least a recess
portion of the uneven pattern, the surface treatment method comprising, during a cleaning
15 process of the wafer, forming a water-repellent protective film on at least the recess portion
of the uneven pattern by supplying a vapor of a composition containing a water-repellent
protective film-forming component and a solvent to the uneven pattern in a state that a
liquid is retained in at least the recess portion of the uneven pattern, changing the vapor of
the composition into a liquid and replacing the liquid retained in the recess portion with the
20 liquid of the composition, wherein the water-repellent protective film-forming component
consists of a compound of the following general formula [1], and wherein the solvent
contains at least an acyclic carbonate in an amount of 50 to 100 mass% based on the total
amount of the solvent



25 where R^1 is each independently a group selected from the group consisting of a H atom, a
 C_1 - C_{10} hydrocarbon group and a C_1 - C_{10} hydrocarbon group in which a part or all of
hydrogen atoms are substituted with a fluorine atom; x is an integer of 1 to 3; and R^2 is
each independently a group selected from the group consisting of methyl, ethyl and acetyl,
in which at least a part or all of hydrogen atoms may be substituted with a fluorine atom.

30 FIG. 4