

ABSTRACT

FILM FORMING COMPOSITION CONTAINING FLUORINE-CONTAINING
SURFACTANT

There is provided a film with reduced formation of an edge reservoir at a
5 periphery of a film in which the edge reservoir causes an unnecessary residue that cannot
be removed by an etching process, and a method for forming the film. A film forming
composition for use in a lithography process, the film forming composition comprising a
surfactant containing a polymer and an oligomer having a C₃₋₅ perfluoroalkyl partial
structure. The perfluoroalkyl partial structure preferably has a carbon number of 4.
10 The perfluoroalkyl partial structure may further include an alkyl partial structure, and the
polymer and the oligomer are preferably a (meth)acrylate polymer and a (meth)acrylate
oligomer, respectively. The surfactant is contained in an amount of 0.0001% by mass to
1.5% by mass based on the total solid content of the film forming composition. The
film forming composition further comprises a coating film resin, and the coating film
15 resin is a novolac resin, a condensation epoxy resin, a (meth)acrylic resin, a
polyether-based resin, or a silicon-containing resin, etc. The formed film can be used as
a resist underlayer film or a resist overlayer film.