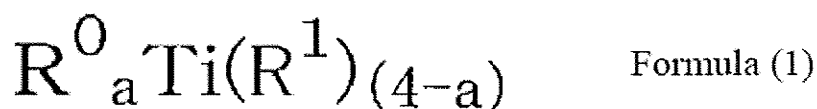


THIN FILM FORMING COMPOSITION FOR LITHOGRAPHY CONTAINING  
TITANIUM AND SILICON

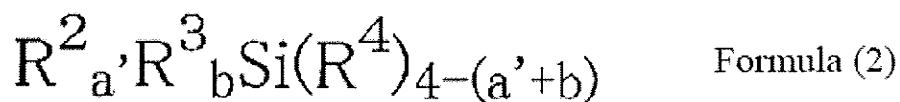
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ABSTRACT

There is provided a thin film forming composition for forming resist underlayer film and the like which are used in the production of a semiconductor device, and a resist upper layer film which efficiently absorbs undesirable UV light with a thin film existing as an upper layer of the EUV resist before the undesirable UV light reaches the EUV resist layer in EUV lithography, an underlayer film (hardmask) for an EUV resist, a reverse material, and an underlayer film for a resist for solvent development. A thin film forming composition that is used together with a resist in a lithography process, comprising a mixture of a titanium compound (A) selected from a group consisting of a compound of Formula (1):



a titanium chelate compound, and a hydrolyzable titanium dimer, and a silicon compound (B) of Formula (2):



a hydrolysis product of the mixture, or a hydrolysis-condensation product of the mixture, wherein the number of moles of a Ti atom is 50% to 90% relative to the number of total moles in terms of a Ti atom and a Si atom in the composition.