

[DOCUMENT] ABSTRACT

Provided is a mask blank including a phase shift film in which a transmittance to an exposure light of an ArF excimer laser can be enhanced and a film thickness necessary to secure a desired phase difference can be controlled to be small.

The mask blank includes a phase shift film on a main surface of a transparent substrate, the phase shift film contains silicon, oxygen, and nitrogen, a ratio of a nitrogen content [atom%] to a silicon content [atom%] in the phase shift film is 0.20 or more and 0.52 or less, a ratio of an oxygen content [atom%] to a silicon content [atom%] in the phase shift film is 1.16 or more and 1.70 or less, a refractive index n of the phase shift film to a wavelength of an exposure light of an ArF excimer laser is 1.7 or more and 2.0 or less, and an extinction coefficient k is 0.05 or less.