ABSTRACT

A photomask blank having a substrate; and a multilayer film including a first layer, a second layer, and a third layer. The first layer contains 43 at% or less chromium, 32 at% or more oxygen, 25 at% or less nitrogen and 5 at% or more and 18 at% or less carbon and has a thickness of 8 nm or more and 16 nm or less. The second layer contains 66 at% or more and 92 at% or less chromium and 8 at% or more and 30 at% or less nitrogen and has a thickness of 50 nm or more and 75 nm or less. The third layer contains 44 at% or less chromium, 30 at% or more oxygen and 28 at% or less nitrogen and has a thickness of 10 nm or less. A surface roughness Rq of the multilayer film is 0.65 nm or less.

FIG. 1