

## ABSTRACT

Provided is a substrate with a thin film for manufacturing a reflective mask that at least does not adversely affect performance of the reflective mask even when a thin  
5 film of a substrate with the thin film such as a reflective mask blank comprises impurities.

A substrate with a thin film comprises: a substrate; and at least one thin film formed on a main surface of the substrate. The thin film comprises a matrix material constituting the thin film and a small-amount material other than the matrix material.  
10 When secondary ion intensity emitted from the thin film is measured by time-of-flight secondary ion mass spectrometry (TOF-SIMS), a ratio ( $I_2/I_1$ ) of secondary ion intensity ( $I_2$ ) of at least one of the small-amount material in the thin film to secondary ion intensity ( $I_1$ ) of the matrix material is more than 0 and 0.300 or less.