MASK BLANK, AND METHOD OF MANUFACTURING TRANSFER MASK

Technical Field

[0001]

The present invention relates to a mask blank and a transfer mask.

Description of Related Art

[0002]

Generally, a semiconductor pattern is formed using a photolithography method in a manufacturing step of a semiconductor device, and in a pattern transfer step for performing the photolithography method, a transfer mask is used. The transfer mask is manufactured by patterning a thin film (for example, a light shielding film) provided on a substrate, and forming a desired transfer pattern. In pattering of the transfer mask, a resist film is formed on the thin film, and thereafter the transfer pattern is formed using the resist film as a mask.

[0003]

In recent years, as a semiconductor pattern becomes finer, a transfer pattern of the transfer mask used for the formation of the semiconductor pattern becomes also finer. Therefore, a chemically amplified resist is used for a mask blank, which is used for a fine processing technique of a semiconductor wafer. The chemically amplified resist generates an acid by exposure, and becomes a positive or a negative resist by a reaction between the acid and a functional group or a functional material controlling a solubility of a polymer, with this acid as a catalyst. Since the chemically amplified resist has a high sensitivity and resolution due to an

organic solvent.

5. The mask blank according to any one of claims 1 to 4, wherein the resist underlying composition contains a base polymer and a crosslinking catalyst, and contains 0.05 mass% or more and 10 mass% or less of the crosslinking catalyst based on 100 mass% of the base polymer.

6. A method of manufacturing a transfer mask, comprising:

forming a resist pattern on the resist film and the mixture film of the mask blank of any one of claims 1 to 5; and

forming a transfer pattern by etching the resist underlying film and the thin film using the resist pattern.