CLAIMS

WHAT IS CLAIMED IS:

1. A blank mask comprising a transparent substrate and a light shielding film disposed on the transparent substrate,

wherein the light shielding film comprises a transition metal and at least one selected from the group consisting of oxygen and nitrogen,

wherein when a surface of the light shielding film comprises nine sectors formed by trisecting the surface of the light shielding film vertically and horizontally, each of the nine sectors has a Rsk value, respectively, and an average value of the Rsk values of the nine sectors is equal to -0.64 or more and less than or equal to 0, where Rsk value is a height symmetry of the surface of the light shielding film measured in accordance with ISO_4287,

wherein an average value of Rku values, which are kurtosis of the surface of the light shielding film measured in accordance with ISO_4287, of the nine sectors is 3 or less, and

wherein a standard deviation value of the Rsk values of the nine sectors is 0.6 or less.

2. The blank mask of claim 1, wherein a standard deviation value of the Rku values of the nine sectors is 0.9 or less.

3. The blank mask of claim 1, wherein a difference between a maximum value and a minimum value of the Rku values of the nine sectors is 2.2 or less.

4. The blank mask of claim 3, wherein the maximum value of the Rku values of the nine sectors is 4.6 or less.

5. The blank mask of claim 1, wherein a difference between a maximum value and a minimum value of the Rsk values of the nine sectors is 1.7 or less.

6. The blank mask of claim 1, wherein a cross section of the light shielding film comprises a center, a first edge at one end, and a second edge at another end, and when a thickness of the light shielding film measured at the center is Hc, a thickness of the light shielding film measured at the first edge is H1, and a thickness of the light shielding film measured at the second edge is H2, a greater of |Hc-H1| and |Hc-H2| is less than 5 Å, where |Hc-H1| is an absolute value obtained by subtracting H1 from Hc and |Hc-H2| is an absolute value obtained by subtracting H2 from Hc.

7. The blank mask of claim 1, wherein the light shielding film comprises a first light shielding layer and a second light shielding layer disposed on the first light shielding layer.

8. The blank mask of claim 7, wherein an amount of the transition metal of the second light shielding layer is greater than an amount of the transition metal of the first light shielding layer.

9. The blank mask of claim 1, wherein the transition metal comprises at least one selected from the group consisting of Cr, Ta, Ti, and Hf.

10. A photomask comprising a transparent substrate and a light shielding pattern film disposed on the transparent substrate,

wherein the light shielding pattern film comprises a transition metal and at least one selected from the group consisting of oxygen and nitrogen,

wherein when an upper surface of the light shielding pattern film comprises nine sectors formed by trisecting the upper surface of the light shielding pattern vertically and horizontally, each of the nine sectors has a Rsk value, respectively, and an average value of the Rsk values of the nine sectors is equal to -0.64 or more and less than or equal to 0 where Rsk value is a height symmetry of the surface of the light shielding pattern film measured in accordance with ISO_4287,

wherein an average value of Rku values, which are kurtosis of the surface of the light shielding pattern film measured in accordance with ISO_4287, of the nine sectors is 3 or less, and

wherein a standard deviation value of the Rsk values of the nine sectors is 0.6 or less.

11. The photomask of claim 10, wherein a standard deviation value of the Rku values of the nine sectors is 0.9 or less.

12. The photomask of claim 10, wherein a difference between a maximum value and a minimum value of the Rku values of the nine sectors is 2.2 or less.

13. The photomask of claim 12, wherein the maximum value of the Rku values of the nine sectors is 4.6 or less.

14. The photomask of claim 10, wherein a difference between a maximum value and a minimum value of the Rsk values of the nine sectors is 1.7 or less.

15. The photomask of claim 10, wherein a cross section of the light shielding pattern film comprises a center, a first edge at one end, and a second edge at another end, and when a thickness of the light shielding pattern film measured at the center is Hc, a thickness of the light shielding pattern film measured at the first edge is H1, and a thickness of the light shielding pattern film measured at the second edge is H2, a greater of |Hc-H1| and |Hc-H2| is less than 5 Å, where |Hc-H1| is an absolute value obtained by subtracting H1 from Hc and |Hc-H2| is an absolute value obtained by subtracting H2 from Hc.

16. The photomask of claim 10, wherein the light shielding pattern film comprises a first light shielding pattern layer and a second light shielding pattern layer disposed on the first light shielding pattern layer, and an amount of the transition metal of the second light shielding pattern layer is greater than an amount of the transition metal of the first light shielding pattern layer.

17. The photomask of claim 10, wherein the transition metal comprises at least one selected from the group consisting of Cr, Ta, Ti, and Hf.

18. A method of manufacturing a semiconductor element comprising:

disposing a light source, a photomask, and a semiconductor wafer comprising a resist film disposed on a surface of the semiconductor wafer;

selectively transmitting a light incident from the light source through the photomask on the surface of the semiconductor wafer to be transferred; and

developing a pattern on the surface of the semiconductor wafer,

wherein the photomask comprises a transparent substrate and a light shielding pattern film disposed on the transparent substrate,

wherein the light shielding pattern film comprises a transition metal and at least one selected from the group consisting of oxygen and nitrogen,

wherein when an upper surface of the light shielding pattern film comprises nine sectors formed by trisecting the upper surface of the light shielding pattern film vertically and horizontally, each of the nine sectors has a Rsk value, respectively, and an average value of the Rsk values of the nine sectors is equal to -0.64 or more and less than or equal to 0 where Rsk value is a height symmetry of the surface of the light shielding pattern film measured in accordance with ISO_4287,

wherein an average value of Rku values, which are kurtosis of the surface of the light shielding pattern film measured in accordance with ISO_4287, of the nine sectors is 3 or less, and

wherein a standard deviation value of the Rsk values of the nine sectors is 0.6 or less.