CLAIMS

1. A mask blank substrate having a substantially quadrangular planar shape and a size of 152 mm × 152 mm, the mask blank substrate comprising:

a first main surface on which a transfer pattern is formed and a second main surface that is opposed to the first main surface and is to be fixed to a mask stage of an exposure apparatus, wherein

the first main surface includes a first area located around a center and a second area located outside the first area,

the second main surface includes a third area located around a center and a fourth area located outside the third area,

an angle α formed between a least squares plane of the first area and a least squares plane of the third area is less than 1.2°, and

a PV value of a surface of the second area with reference to the least squares plane of the first area and a PV value of a surface of the fourth area with reference to the least squares plane of the third area are 400 nm or less.

2. The mask blank substrate according to claim 1, wherein the first area is an area on which the transfer pattern is formed and has a size of 132 mm × 132 mm or more with reference to the center of the substrate.

3. The mask blank substrate according to claim 1 or 2, wherein the third area has a size of 142 mm × 142 mm or more with reference to the center of the substrate.

4. The mask blank substrate according to any one of claims 1 to 3, wherein each of the second area and the fourth area is an area outside a 148 mm × 148 mm area with reference to the center of the substrate.

5. The mask blank substrate according to any one of claims 1 to 4, wherein the mask blank substrate is a reflective mask blank substrate.

6. A substrate with a conductive film, the substrate comprising the conductive film on the second main surface of the mask blank substrate according to any one of claims 1 to 5.

7. A substrate with a multilayer reflective film, the substrate comprising the multilayer reflective film in which a high refractive index layer and a low refractive index layer are alternately layered, wherein the multilayer reflective film is on the first main surface of the mask blank substrate according to any one of claims 1 to 6.

8. A reflective mask blank comprising an absorber film serving as a transfer pattern,

wherein the absorber film is on the multilayer reflective film of the substrate with a multilayer reflective film according to claim 7.

9. A reflective mask comprising an absorber pattern, wherein the absorber pattern is on the multilayer reflective film in the reflective mask blank according to claim 8, and is provided by patterning the absorber film.

10. A method of manufacturing a semiconductor device, the method comprising a step of performing a lithography process that employs an exposure apparatus using the reflective mask according to claim 9 to form a transfer pattern on a transfer-receiving object.