CLAIMS

1. A method of manufacturing a mask blank substrate made of a glass, comprising a step for wet etching a mask blank substrate having two main surfaces consisting of first and second main surfaces by introducing an etching liquid to the first main surface to cover the first main surface with the etching liquid,

wherein the step for wet etching is conducted under a condition where the etching liquid adjusted to a first temperature is supplied to the first main surface, and a liquid adjusted to a second temperature is supplied in the form of a radial liquid film flow covering the entire second main surface,

wherein the first temperature is in the range of 40° C to 95° C, and

wherein a temperature difference between the first temperature and the second temperature is within ±5° C.

2. A method of manufacturing a mask blank substrate according to claim 1, wherein the wet etching is conducted by paddle etching.

3. A method of manufacturing a mask blank substrate according to claim 1 or 2, wherein the wet etching comprises at least one or more etchants, boiling point of the etchant being higher than the first temperature of the etching liquid supplied to the first main surface.

4. A method of manufacturing a mask blank substrate according to any one of claim 1 to claim 3, wherein supplying the liquid adjusted to the second temperature to the second main surface is carried out prior to commencement of introduction of the etching liquid.

5. A method of manufacturing a mask blank substrate according to any one of claim 1 to claim 4, wherein the step for wet etching is conducted by arranging the mask blank substrate on a stage such that the

second main surface faces the stage at a predetermined interval and by forming the liquid film flow of the liquid between the second main surface and the stage.

6. A method of manufacturing a mask blank substrate according to claim 5, wherein the predetermined interval ranges from 0.5 mm to 5 mm.

7. A method of manufacturing a mask blank substrate according to any one of claim 1 to claim 6 comprising a cleaning step using a cleaning liquid after the step for wet etching,

wherein at least a certain time during the cleaning step is conducted under a condition where the liquid adjusted to the second temperature is supplied to the second main surface.

8. A method of manufacturing a mask blank substrate according to any one of claim 1 to claim 7, wherein the liquid adjusted to the second temperature is an aqueous solution.

9. A method of manufacturing a mask blank comprising:

the steps of manufacturing a mask blank substrate according to any one of claim 1 to claim 8; and

a step of forming a transfer pattern thin film directly or via another layer on the first main surface of the mask blank substrate.

10. A method of manufacturing a transfer mask comprising:

the steps of manufacturing a mask blank according to claim 9; and

a step of patterning the transfer pattern thin film of the mask blank.