WHAT IS CLAIMED IS:

1. A method of manufacturing a magnetic disk glass substrate, comprising:

a polishing step of polishing a main surface of a glass substrate; and

a cleaning step of cleaning the glass substrate after the polishing step, wherein:

in the cleaning step, the cleaning is performed under an acidic condition using a cleaning liquid containing oxalate ions and bivalent iron ions,

the cleaning step including an operation of reducing the cleaning liquid.

2. The method according to claim 1, wherein the operation of reducing the cleaning liquid is light irradiation of the cleaning liquid.

3. A method of manufacturing a magnetic disk glass substrate, comprising:

a polishing step of polishing a main surface of a glass substrate; and

a cleaning step of cleaning the glass substrate after the polishing step, wherein:

in the cleaning step, the cleaning is performed under an acidic condition using a cleaning liquid containing oxalate ions and bivalent iron ions,

the cleaning liquid being subjected to light irradiation in parallel with the cleaning step or before the cleaning step or after the cleaning step.

4. The method according to claim 3, wherein light for irradiation of the cleaning liquid is an ultraviolet ray or a visible light.

5. The method according to claim 4, wherein the ultraviolet ray or the visible light has a wavelength in a range between 300 nm and 450 nm.

6. A method of manufacturing a magnetic disk glass substrate, comprising:

a polishing step of polishing a main surface of a glass substrate; and

a cleaning step of cleaning the glass substrate after the polishing step, wherein:

in the cleaning step, the cleaning is performed under an acidic condition using a cleaning liquid containing oxalate ions and bivalent iron ions,

in parallel with the cleaning step or before the cleaning step or after the cleaning step, trivalent iron ions generated by oxidation of the bivalent iron ions contained in the cleaning liquid are reduced.

7. The method according to any one of claims 1, 3 and 6, wherein the polishing step is carried out by using a polishing apparatus having a polishing surface plate containing iron, and

the cleaning step dissolves iron-based foreign matters.

8. The method according to any one of claims 1, 3 and 6, wherein the cleaning liquid further contains an organic acid having a carboxyl group.

9. The method according to claim 8, wherein the organic acid is a carboxylic acid having a molecular weight greater than a molecular weight of an oxalic acid.

10. The method according to any one of claims 1, 3 and 6, wherein the cleaning liquid has a pH not smaller than 1.8 and not greater than 4.2.

11. The method according to any one of claims 1, 3 and 6 , wherein a concentration of an oxalic acid in the cleaning liquid is not smaller than 0.015 mol/L and not greater than 0.24 mol/L.

12. The method according to any one of claims 1, 3 and 6, wherein the bivalent iron ions contained in the cleaning liquid are supplied from at least one of ammonium iron (II) sulfate, iron (II) sulfate, and iron (II) oxalate as a bivalent ion supplying substance, and

a concentration of ammonium iron (II) sulfate in the cleaning liquid is not smaller than 0.00038 mol/L and not greater than 0.0077 mol/L when the bivalent ion supplying substance is ammonium iron (II) sulfate.

13. The method according to any one of claims 1, 3 and 6 , wherein the glass substrate after the cleaning step has a surface roughness of 0.2 nm or less.

14. A method of manufacturing a magnetic disk, comprising:

forming at least a magnetic layer on the main surface of the magnetic disk glass substrate obtained by the method according to any one of claims 1, 3 and 6.

WHAT IS CLAIMED IS:

1. A method of manufacturing a magnetic disk glass substrate, comprising: a polishing step of polishing a main surface of a glass substrate; and a cleaning step of cleaning the glass substrate after the polishing step, wherein: in the cleaning step, the cleaning is performed under an acidic condition using a cleaning liquid containing oxalate ions and bivalent iron ions, the cleaning step including an operation of reducing the cleaning liquid.

2. The method according to claim 1, wherein the operation of reducing the cleaning liquid is light irradiation of the cleaning liquid.

3. The method according to claim 1, wherein the polishing step is carried out by using a polishing apparatus having a polishing surface plate containing iron, and the cleaning step dissolves iron-based foreign matters.

4. The method according to claim 1, wherein the cleaning liquid further contains an organic acid having a carboxyl group.

5. The method according to claim 4, wherein the organic acid is a carboxylic acid having a molecular weight greater than a molecular weight of an oxalic acid.

6. The method according to claim 1, wherein the cleaning liquid has a pH not smaller than 1.8 and not greater than 4.2.

7. The method according to claim 1, wherein a concentration of an oxalic acid in the cleaning liquid is not smaller than 0.015 mol/L and not greater than 0.24 mol/L.

8. The method according to claim 1, wherein the bivalent iron ions contained in the cleaning liquid are supplied from at least one of ammonium iron (II) sulfate, iron (II) sulfate, and iron (II) oxalate as a bivalent ion supplying substance, and a concentration of ammonium iron (II) sulfate in the cleaning liquid is not smaller than 0.00038 mol/L and not greater than 0.0077 mol/L when the bivalent ion supplying substance is ammonium iron (II) sulfate.

9. The method according to claim 1, wherein the glass substrate after the

cleaning step has a surface roughness of 0.2 nm or less.

10. A method of manufacturing a magnetic disk, comprising: forming at least a magnetic layer on the main surface of the magnetic disk glass substrate obtained by the method according to claim 1.

11. A method of manufacturing a magnetic disk glass substrate, comprising: a polishing step of polishing a main surface of a glass substrate; and a cleaning step of cleaning the glass substrate after the polishing step, wherein: in the cleaning step, the cleaning is performed under an acidic condition using a cleaning liquid containing oxalate ions and bivalent iron ions, the cleaning liquid being subjected to light irradiation in parallel with the cleaning step or before the cleaning step or after the cleaning step.

12. The method according to claim 11, wherein light for irradiation of the cleaning liquid is an ultraviolet ray or a visible light.

13. The method according to claim 12, wherein the ultraviolet ray or the visible light has a wavelength in a range between 300 nm and 450 nm.

14. A method of manufacturing a magnetic disk glass substrate, comprising: a polishing step of polishing a main surface of a glass substrate; and a cleaning step of cleaning the glass substrate after the polishing step, wherein: in the cleaning step, the cleaning is performed under an acidic condition using a cleaning liquid containing oxalate ions and bivalent iron ions, in parallel with the cleaning step or before the cleaning step or after the cleaning step, trivalent iron ions generated by oxidation of the bivalent iron ions contained in the cleaning liquid are reduced.