CLAIMS

1. A glass substrate for an information recording medium ~~to be used in an information recording medium which has a magnetic recording layer formed on a main surface of the glass substrate and in which a recording density of a magnetic recording surface is equal to or greater than 600 Gbit per square inch~~,

wherein an average value of change values of Ra of ~~a~~ the main surface of the glass substrate for an information recording medium before and after being subjected to a first alkali treatment in which the glass substrate for an information recording medium is immersed in a sodium hydroxide solution at pH 11 at 40°C for 30 minutes is 0.50 Å or less, and

an average value of change values of Ra of ~~a~~ the main surface of the glass substrate for an information recording medium before and after being subjected to a second alkali treatment in which the glass substrate for an information recording medium is immersed in a sodium hydroxide solution at pH 12 at 25°C for 2.5 hours is 2.00 Å or less.

2. The glass substrate for an information recording medium according to claim 1,

wherein the average value of change values of Ra before and after the first alkali treatment is 0.30 Å or less, and

the average value of change values of Ra before and after the second alkali treatment is 1.50 Å or less.

3. The glass substrate for an information recording medium according to claim 1 or 2,

wherein Ra of the main surface of the glass substrate for an information recording medium when measured using an atomic force microscope is 1.7 Å to 2.3 Å in measurement of a region of 1 μm^2 and 1.4 Å to 1.7 Å in measurement of a region of 100 μm^2.

4. The glass substrate for an information recording medium according to any of claims 1 to 3,

wherein a recording density of the magnetic recording media is equal to or greater than 600 Gbit per square inch.

45. A method for manufacturing a glass substrate for an information recording medium according to any one of claims 1 to ~~3~~4, comprising:

a polishing step of polishing main surfaces of a circular glass member;

a treatment bringing the polished circular glass member into contact with hydrogen-rich water of 0.1 to ~~1.4~~ 1.5 ppm for 1 to 10 minutes, an alkaline solution at pH 10.0 to 11.0 for 5 to 20 minutes and an organic acid of 0.05 to 0.5% for 5 to 20 minutes in the stated order after the polishing step; and

a final cleaning step.

56. A method for manufacturing a glass substrate for an information recording medium according to any one of claims 1 to ~~3~~4, comprising:

a polishing step of polishing main surfaces of a circular glass member;

a treatment bringing the polished circular glass member into contact with an alkaline solution at pH 10.0 to 11.0 for 5 to 20 minutes and an organic acid of 0.05 to 0.5% for 5 to 20 minutes in the stated order after the polishing step; and

a final cleaning step.

~~6~~7. A method for manufacturing a glass substrate for an information recording medium according to any one of claims 1 to ~~3~~4, comprising:

a polishing step of polishing main surfaces of a circular glass member;

a treatment of bringing the polished circular glass member into contact with hydrogen-rich water of 1.5 ppm for 3 minutes and an alkaline solution at pH 10.0 to 11.0 for 5 to 20 minutes in the stated order after the polishing step; and

a final cleaning step.

8. A magnetic recording medium comprising at least a magnetic recording layer formed on the main surface of the glass substrate according to any of claims 1 to 4.

9. A method for manufacturing a magnetic recording medium comprising the step of forming at least a magnetic recording layer on the main surface of the glass substrate according to any of claims 1 to 4.