DESCRIPTION

RINSING AGENT, AND METHOD FOR PRODUCTION OF HARD DISK SUBSTRATE

TECHNICAL FIELD

The present invention relates to a rinsing agent for hard disk substrate and a method for production of a hard disk substrate using such a rinsing agent.

BACKGROUND ART

Hard disks to be incorporated into magnetic disk storage devices such as a computer have been steadily made more compact and increased in capacity, and so hard disk substrates are required to be of extremely high-precision quality. To this end, the surface of a hard disk substrate is conventionally polished for smoothing, and the process therefor includes rough polishing using alumina abrasive grains and final polishing using colloidal silica abrasive grains.

When such alumina abrasive grains used during the rough polishing are unfortunately left on the substrate surface and they are not removed even after the final polishing, characteristics of the hard disk substrate as a medium may be degraded.

To cope with this, in a known method, rinsing is provided between the rough polishing and the final polishing to rinse a hard disk substrate with rinsing solution containing colloidal silica abrasive grains, thus reducing the remaining alumina on the substrate surface (Patent Document 1).

Patent Document 1: JP Patent Publication (Kokai) No. 62-208869 A (1987)

SUMMARY

In a first aspect, there is provided a rinsing agent when used for rinsing an aluminum alloy hard disk substrate having a Ni-P layer, wherein the rinsing agent contains colloidal silica abrasive grains, letting that the colloidal silica abrasive grains have a concentration C and an average grain size R (C and R are represented in weight% and nm, respectively), the concentration C and the average grain size R of the colloidal silica abrasive grains have a relation matching the following Expression (1):

$R \geq 2.2C+18.2$ .....(1), the concentration C of the colloidal silica abrasive grains is from 0.8 to 8.0 weight%, and the average grain size R of the colloidal silica abrasive grains is from 20 to 80nm.

In a second aspect, there is provided a method for production of a hard disk substrate, comprising a rinsing step of rinsing an aluminum alloy hard disk substrate having a Ni-P layer as defined herein.

DISCLOSURE OF THE INVENTION

PROBLEM TO BE SOLVED BY THE INVENTION

The present inventors, however, found that rinsing with a conventional rinsing agent might cause a pit defect of about tens of nanometers in depth on the substrate surface during rinsing. Therefore an excellent rinsing agent capable of

CLAIMS

1. A rinsing agent when used for rinsing an aluminum alloy hard disk substrate having a Ni-P layer, wherein

the rinsing agent contains colloidal silica abrasive grains,

letting that the colloidal silica abrasive grains have a concentration C and an average grain size R (C and R are represented in weight% and nm, respectively), the concentration C and the average grain size R of the colloidal silica abrasive grains have a relation matching the following Expression (1):

$R \geq 2.2C+18.2$ .....(1),

the concentration C of the colloidal silica abrasive grains is from 0.8 to 8.0 weight%, and

the average grain size R of the colloidal silica abrasive grains is from 20 to 80nm.

2. The rinsing agent according to claim 1, wherein the rinsing agent contains sulfuric acid.

3. A method for production of a hard disk substrate, comprising a rinsing step of rinsing an aluminum alloy hard disk substrate having a Ni-P layer ~~using the rinsing agent~~ according to claim 1.

4. The method for production of a hard disk substrate according to claim 3, wherein the rinsing step is performed after a rough-polishing step and before a final-polishing step, in the rough-polishing step, the hard disk substrate being rough-polished using polishing slurry containing alumina abrasive grains and in the final-polishing step, the hard disk substrate being final-polished using polishing slurry containing colloidal silica abrasive grains.

5. The method for production of a hard disk substrate according to claim 4, wherein the method further comprises the steps of: grinding an aluminum alloy blank to form a hard disk substrate; and applying Ni-P plating to the hard disk substrate to form a Ni-P layer on the surface of the substrate.

6. The method for production of a hard disk substrate according to claim 3, wherein the amount of alumina abrasive grains remaining on the substrate surface after the final-polishing step is 123 grains/μm^2 or less.