Abstract

Glass for Magnetic Recording Media Substrates,
Magnetic Recording Media Substrates,
Magnetic Recording Media and
Method for Preparation thereof

The present invention relates to a glass for a magnetic recording medium substrate permitting the realization of a magnetic recording medium substrate affording good chemical durability and having an extremely flat surface, a magnetic recording medium substrate comprised of this glass, a magnetic recording medium equipped with this substrate, and methods of manufacturing the same. The glasses comprise an oxide of a first glass, comprising, as mass percentages:

Si 20 to 40 percent,
Al 0.1 to 10 percent,
Li 0.1 to 5 percent,
Na 0.1 to 10 percent,
K 0 to 5 percent
(where the total content of Li, Na, and K is 15 percent or less)
Sn 0.005 to 0.6 percent, and
Ce 0 to 1.2 percent;
the Sb content is 0 to 0.1 percent; and
not comprising As or F; and by having a λ (Lambda) 80 of 320 or greater;
an oxide of a second glass, comprising, as molar percentages:

SiO_2 60 to 75 percent,
Al_2O_3 1 to 15 percent,
Li_2O 0.1 to 20 percent,
Na_2O 0.1 to 15 percent, and
K_2O 0 to 5 percent
(where the total content of Li_2O, Na_2O, and K_2O is 25 percent or lower);
based on the total amount of the glass components, 0.01 to 0.7 mass percent of Sn oxide and 0 to 1.4 mass percent of Ce oxide are added;
the content of Sb oxide is 0 to 0.1 mass percent;
and not comprising As or F; and
an oxide of a third glass, comprising, as molar percentages:

SiO_2 60 to 75 percent,
Al_2O_3 1 to 15 percent,

Li_2O 0.1 to 20 percent,

Na_2O 0.1 to 15 percent,

K_2O 0 to 5 percent

(where the total content of Li_2O, Na_2O, and K_2O is 25 percent or less);

by comprising a 0.1 to 3.5 mass percent of total content of Sn oxide and Ce oxide, based on the total amount of the glass components;

the ratio of the Sn oxide content to the total content of Sn oxide and Ce oxide (Sn oxide content/(Sn oxide content + Ce oxide content)) is 0.01 to 0.99;

the Sb oxide content is 0 to 0.1 percent; and

comprising no As or F and optionally having a λ (Lambda) 80 of 320 or greater.

Figure 1.

Abstract

Glass for Magnetic Recording Media Substrates,
Magnetic Recording Media Substrates,
Magnetic Recording Media and
Method for Preparation thereof

A chemically durable glass for a magnetic recording medium substrate with an extremely flat surface, (and methods of manufacturing the same), comprising as mass percentages, oxides of a:

first glass, comprising:

Si	20-40%,
Al	0.1-10%,
Li	0.1-5%,
Na	0.1-10%,
K	0-5%,

(the total Li, Na, and K content being ≤15%)

Sn	0.005-0.6%,
Ce	0-1.2%;

the Sb content being 0-0.1%; and having a Lambda-80 of ≥320;

second glass, comprising:

SiO_2	60-75%,
Al_2O_3	1-15%,
Li_2O	0.1-20%,
Na_2O	0.1-15%,
K_2O	0-5%

(the total Li_2O, Na_2O, and K_2O content being ≤25%);

based on the total amount of the glass components, 0.01-0.7mass% of Sn and 0-1.4mass% of Ce being added;

the content of Sb being 0-0.1mass%; and

third glass, comprising:

SiO_2	60-75%,
Al_2O_3	1-15%,
Li_2O	0.1-20%,

Na_2O 0.1-15%,

K_2O 0-5%

(the total Li_2O, Na_2O, and K_2O content being ≤25%);

and comprising 0.1-3.5mass% of the total content of Sn and Ce, based on the total amount of glass components;

where the (Sn content/(Sn content + Ce content)) is 0.01-0.99;

the Sb content being 0-0.1%; and

optionally having a Lambda-80 of ≥320;

none of the three glasses comprising As or F.

Figure 1.