

Abstract

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

The provided are 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.

Glasses for a magnetic recording medium substrate are, glass I comprised of an oxide glass, comprising, denoted 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;

glass II comprised of oxide glass, comprising, as converted based on the oxide, denoted 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

glass III comprised of oxide glass, comprising, converted based on the oxide, denoted as molar percentages:

SiO_2 60 to 75 percent,

Al_2O_3 1 to 15 percent,

Li_2O 0.1 to 20 percent,

Na₂O 0.1 to 15 percent,
K₂O 0 to 5 percent
(where the total content of Li₂O, Na₂O, and K₂O 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.

Figure 1.