WHAT IS CLAIMED IS:

1. A thermal diffusion control film, comprising an Ag alloy containing Nd, Bi, and Si.

2. The thermal diffusion control film according to claim 1, wherein the Ag alloy contains:

Nd: more than 0 atomic % and 1.0 atomic % or less;

Bi: more than 0 atomic % and 0.1 atomic % or less; and

Si: more than 0.05 atomic % and 3 atomic % or less.

3. A magnetic recording medium, comprising the thermal diffusion control film according to claim 1.

4. A magnetic recording medium, comprising the thermal diffusion control film according to claim 2.

5. A sputtering target, comprising an Ag alloy containing Nd, Bi, and Si.

6. The sputtering target according to claim 5, wherein the Ag alloy contains:

Nd: more than 0 atomic % and 1.0 atomic % or less;

Bi: more than 0 atomic % and 0.5 atomic % or less; and

Si: more than 0.05 atomic % and 3 atomic % or less.

WHAT IS CLAIMED IS:

1. A thermal diffusion control film used for a magnetic recording medium for heat-assisted magnetic recording, the thermal diffusion control film comprising an Ag alloy containing Nd, Bi, and Si, wherein when a vacuum heat treatment at 650 °C for 10 seconds is applied, a thermal conductivity is 150 W/(m·K) or more and an average surface roughness Ra is 2.0 nm or less.

2. The thermal diffusion control film according to claim 1, wherein the Ag alloy contains:

Nd: more than 0 atomic % and 0.93 atomic % or less;

Bi: more than 0 atomic % and 0.1 atomic % or less; and

Si: more than 0 atomic % and 3 atomic % or less.

3. A magnetic recording medium for heat-assisted magnetic recording, comprising the thermal diffusion control film according to claim 1 or 2.

4. A sputtering target used for producing the thermal diffusion control film according to claim 1 or 2, the sputtering target comprising an Ag alloy containing Nd, Bi, and Si.