CLAIMS

1. An alloy suitable for a sputtering target, the alloy comprising 50 at% or more and 70 at% or less of B,

wherein the alloy further comprises one or two selected from the group consisting of Co and Fe,

wherein the balance of the alloy other than B, Co and Fe is inevitable impurities,

wherein the alloy has a metallic structure with a crystal grain size of 30 μm or less,

wherein the metallic structure includes a (CoFe)B phase as a matrix and a plurality of B phases dispersed in the matrix, and

wherein each B phase has an equivalent circular diameter of 30 μm or less.

2. The alloy according to claim 1, wherein a total content ratio of Co and Fe in the alloy is 30 at% or more and 50 at% or less.

3. The alloy according to claim 1 or 2, further comprising O,

wherein a content ratio of O in terms of ppm by mass is equal to or smaller than a value V_1 calculated by a mathematical formula:

$$V_1 = -10 \times B\% + 900$$

wherein B% represents a content ratio of B in terms of at%.

4. A sputtering target, composed of an alloy comprising 50 at% or more and 70 at% or less of B,

wherein the alloy further comprises one or two selected from the group consisting of Co and Fe,

wherein the balance of the alloy other than B, Co and Fe is inevitable impurities,

wherein the alloy has a metallic structure with a crystal grain size of 30 μm or less,

wherein the metallic structure includes a (CoFe)B phase as a matrix and a plurality of B phases dispersed in the matrix, and

wherein each B phase has an equivalent circular diameter of 30 μm or less.

5. A method of producing a magnetic thin film, comprising the steps of:

(1) providing a target composed of an alloy comprising 50 at% or more and 70 at% or less of B, wherein the alloy further comprises one or two selected from the group consisting of Co and Fe, wherein the balance of the alloy other than B, Co and Fe is inevitable impurities, wherein the alloy has a metallic structure with a crystal grain size of 30 μm or less, wherein the metallic structure includes a (CoFe)B phase as a matrix and a plurality of B phases dispersed in the matrix, and wherein each B phase has an equivalent circular diameter of 30 μm or less; and

(2) subjecting the target to sputtering.