

ABSTRACT

An object of the present invention is to provide a method of producing a target material with reduced particle generation during sputtering, which is a method of producing a sputtering target material whose material is an alloy M, including a sintering step of sintering a mixed powder obtained by mixing a first powder and a second powder, wherein a material of the first powder is an alloy M1 in which the proportion of a B content is from 40 at.% to 60 at.%, wherein a material of the second powder is an alloy M2 in which the proportion of a B content is from 20 at.% to 35 at.%, wherein the proportion of a B content in the mixed powder is from 33 at.% to 50 at.%, wherein a metallographic structure including a $(\text{CoFe})_2\text{B}$ phase and a $(\text{CoFe})\text{B}$ phase is formed in the sintering step, and wherein a boundary length per unit area Y ($1/\mu\text{m}$), which is obtained by measuring a boundary length between the $(\text{CoFe})_2\text{B}$ phase and the $(\text{CoFe})\text{B}$ phase using a scanning electron microscope, and a proportion X (at.%) of a B content of the alloy M satisfy the following expression:

$$Y < -0.0015 \times (X - 42.5)^2 + 0.15.$$

FIGURE 1