the resistivity is reduced), a sputtering target using a sintered body provided by adding, to a Cr-Si-based sintered body, the third element such as carbon or boron. However, it is difficult to form such a sintered body so as to have high density. Thus, use of, as a sputtering target, such a sintered body to which the third element is added causes generation of a large amount of particles, so that film products are obtained at low yield, namely, productivity.

Citation List

Patent Literature

[0005]

PTL 1: Japanese Unexamined Patent Application Publication No. 2017-82314

PTL 2: Japanese Unexamined Patent Application Publication (Translation of PCT Application) No. 2013-502368

PTL 3: Japanese Unexamined Patent Application Publication No. 2002-173765

PTL 4: Japanese Unexamined Patent Application Publication No. 2003-167324

Summary

[0005a]

In an aspect of the present disclosure, there is provided a Cr-Si-C-based sintered body comprising chromium (Cr), silicon (Si) and carbon (C), wherein the sintered body comprises CrSi and at least one selected from the group consisting of chromium carbide, silicon carbide and carbon,

the mass ratio (wt%) of CrSi is more than 50 wt%, and

the sintered body has a relative density of 90% or more and a porosity of 13% or less.

CLAIMS

[Claim 1]

A Cr-Si-C-based sintered body comprising chromium (Cr), silicon (Si) and carbon (C), wherein the sintered body comprises CrSi and at least one selected from the group consisting of chromium carbide, silicon carbide and carbon,

the mass ratio (wt%) of CrSi is more than 50 wt%, and

the sintered body has a relative density of 90% or more and a porosity of 13% or less.

[Claim 2]

The Cr-Si-C-based sintered body according to claim 1, having a composition composed of 1 to 20 wt% of carbon, 20 to 70 wt% of silicon and the remainder being chromium.

[Claim 3]

The Cr-Si-C-based sintered body according to claim 1 or 2, which has a chromium content of more than 10 wt% and less than 79 wt%.

[Claim 4]

The Cr-Si-C-based sintered body according to any one of claims 1 to 3, having an oxygen content of 1 wt% or less.

[Claim 5]

The Cr-Si-C-based sintered body according to any one of claims 1 to 4, having an oxygen content of 0.5 wt% or less.

[Claim 6]

The Cr-Si-C-based sintered body according to any one of

claims 1 to 5, having a flexural strength of 100 MPa or more.

[Claim 7]

A method for producing the Cr-Si-C-based sintered body according to any one of claims 1 to 6, the method comprising a step of mixing together a gas atomization powder of chromium and silicon and a carbon source containing at least one of chromium or silicon and carbon to obtain an alloy-raw-material powder and a baking step of hot-pressing the alloy-raw-material powder in a vacuum atmosphere, at a pressure of 50 MPa or less and a baking temperature of 1350°C or more and 1800°C or less.

[Claim 8]

The production method according to claim 7, wherein the carbon source is a carbide containing at least one of chromium or silicon.

[Claim 9]

A sputtering target comprising the Cr-Si-C-based sintered body according to any one of claims 1 to 6.

[Claim 10]

A method for producing a film by sputtering using the sputtering target according to claim 9.