the present invention, it is preferable that a eutectic carbide with a high Cr/W ratio in the dendrite structure is present in a peripheral portion as compared to a central portion of the dendritic structure.

[0015]

Besides, one mode of a Ni-based alloy powder of the present invention for achieving the above object includes, by mass%: Cr: 8.5% to 23.0%; Mo: 8.5% to 27.0%; Ta: 0.5% to 2.5%; W: 15.0% to 51.0%; and C: 1.0% to 3.5%, the balance being Ni and unavoidable impurities, in which the mass ratios Ni:Cr:Mo of Ni, Cr, and Mo are 2.5 to 3.5:1:1.0 to 1.5.

[0016]

In addition, in one mode of the Ni-based alloy powder of the present invention, it is preferable that the atomic ratio W:C of W and C in the Ni-based alloy powder is 1:0.9 to 1.1.

[0017]

Besides, in one mode of the Ni-based alloy powder of the present invention, it is preferable that the average particle diameter is 5 to 150 μm.

[0018]

In addition, one mode of the Ni-based alloy powder of the present invention preferably is a mixed powder, a granulated powder or an atomized powder.

to 1.1. More preferably, W:C = 1:1.

[0039]

[Unavoidable Impurities]

In the Ni-based alloy of the present embodiment, as unavoidable impurities in addition to the aforementioned elements, mixing of elements introduced according to the situations of raw material, material, production equipment and the like, for example, P, S, Sn, As, Pb, N, O, B, Nb, Ti, V, and Al is permissible. The content of these unavoidable impurities is preferably as small as possible, preferably equal to or less than 0.1%, and may be 0%.

[0040]

The composition of the alloy aforementioned can be analyzed by ICP (Inductively Coupled Plasma) emission spectroscopic analysis.

[0041]

2. Structure of Alloy

The structure of the Ni-based alloy of the present invention typically includes a dendrite structure and a bonding phase surrounding the dendrite structure, through varying depending on the production method and production conditions. FIG. 1 is a schematic view of one mode of the dendrite structure of the Ni-based alloy of the present invention. The dendrite structure is a composite carbide including mainly Cr, Mo, Ta, W, and C, and has a dendrite

structure having primary branches (primary arms) 5 extending in the solidification direction, and secondary branches (secondary arms) 6 extending from the primary branches 5. The distance between the adjacent secondary arms in the dendrite structure (the distance of the part denoted by w in FIG. 1) is referred to as a secondary arm interval. As the secondary arm interval is small, hardness is higher, and solidifying segregation becomes less, so that corrosion resistance is also higher. Therefore, the secondary arm interval w of the dendrite is preferably equal to or less than 5 μm. It is sufficient that the secondary arm interval w of equal to or less than 5 μm is present at a part of the dendrite structure, and the secondary arm interval can be measured by use of, for example, a secondary branch method. The details thereof will be described later.

[0042]

In addition, although the bonding phase contains all the constituent elements of this alloy, the content of Ni is the largest. Since corrosion resistance is worsened if the balance of the Cr amount and Mo amount in the bonding phase is collapsed, it is important to set the component ratios of Ni and Cr and Mo to the aforementioned ratios.

[0043]

3. Alloy Ingot