CLAIMS

1. A Co-based alloy material, having a chemical composition consisting of:

Al of 2 mass % or more and 5 mass % or less;

W of 7 mass % or more and 25 mass % or less;

O of 0.007 mass % or more and 0.05 mass % or less;

C of 0.05 mass % or more and 0.15 mass % or less;

Cr of 6 mass % or more and 10 mass % or less;

Ni of 20 mass % or more and 35 mass % or less;

Ta of 3 mass % or more and 8 mass % or less; and

the balance being Co and impurities,

wherein in γ phase crystal grains as a matrix phase of the Co-based alloy material, segregation cells within an average size of 0.15 μm or more and 1.5 μm or less are formed,

wherein in the segregation cells, γ' phase grains within a size of 0.01 μm or more and 0.5 μm or less including the Co, the Al and the W are dispersively precipitated, and

wherein on boundary regions of the segregation cells and grain boundaries of the γ phase crystal grains, μ phase grains within a size of 0.005 μm or more and 2 μm or less including the Co and the W are dispersively precipitated.

2. The Co-based alloy material according to claim 1, wherein:

the material is a powder comprising particles;

the particles have a size of 0.3 μm or more and 90 μm or less, determined by using a laser diffraction/scattering type particle size distribution measuring apparatus as described in the description; and

the γ phase crystal grains constituting the powder particles have an average size of 50 μm or less.

3. The Co-based alloy material according to claim 1, wherein:

the material is a powder comprising particles;

the particles have a size of 0.3 μm or more and 90 μm or less in an amount of 90 mass % or more thereof, determined by using a laser diffraction/scattering type particle size distribution measuring apparatus as described in the description; and

the γ phase crystal grains constituting the powder particles have an average size of 50 μm or less.

4. The Co-based alloy material according to claim 2 or 3, wherein

when a hole flow testing is performed in accordance with JIS Z 2502: 2012 for 50 g of the powder classified into a size range of 15 μm or more and 45 μm or less, fluidity of the powder classified is 15 s or more and 30 s or less.

5. A Co-based alloy product, having a chemical composition consisting of:

Al of 2 mass % or more and 5 mass % or less;

W of 7 mass % or more and 25 mass % or less;

O of 0.007 mass % or more and 0.05 mass % or less;

C of 0.05 mass % or more and 0.15 mass % or less;

Cr of 6 mass % or more and 10 mass % or less;

Ni of 20 mass % or more and 35 mass % or less;

Ta of 3 mass % or more and 8 mass % or less; and

the balance being Co and impurities,

wherein the product is a polycrystalline body of γ phase crystal grains having an average size of 10 μm or more and 100 μm or less,

wherein in the γ phase crystal grains, γ' phase grains within a size of 0.01 μm or more and 1 μm or less including the Co, the Al and the W are dispersively precipitated in an amount of 40 volume % or more and 85 volume % or less, and

wherein in the γ phase crystal grains and on grain boundaries thereof, μ phase grains within a size of 0.005 μm or more and 20 μm or less including the Co and the W are dispersively precipitated at an average intergrain distance of 0.15 μm or more and 100 μm or less.

6. A method for manufacturing the Co-based alloy

product according to claim 5, the method comprising:

an alloy powder preparation step of preparing a Co-based alloy powder having the chemical composition;

an additive manufacturing step of forming an additively manufactured article by selective laser melting (SLM) and using the Co-based alloy powder; and

an aging treatment step of subjecting the additively manufactured article to a heat treatment at temperatures ranging from 500 to less than 1100°C.

7. The method for manufacturing the Co-based alloy product according to claim 6, wherein

the alloy powder preparation step comprises an alloy powder classification substep, and

powder classified through the substep comprises particles within a range of 0.3 μm or more and 90 μm or less in an amount of 90 mass % or more thereof.