Tohoku Univ. Technology

Co-based alloy powder for electron beam lamination shaping

Able to obtain formed body with excellent corrosion & wear resistance, and high hardness & toughness

Overview

Co-based alloy has excellent corrosion and wear resistance, and it is widely used for biomaterial and casting mold material. However, it could not be used for industrial product requiring mechanical strength because the strength is lower than an iron-based material. Although the addition of nitrogen or carbon is known to increase the strength of Co-based alloy, it is not sufficient to use as an industrial product. The lamination shaping method using Co-based alloy powder as raw material is also known to product a body with complex shape having excellent corrosion and wear resistance, but the product fabricated by this method has still not enough strength to use as an industrial product.

This invention is able to provide a Co-based alloy powder for electron beam lamination shaping with extremely high hardness & toughness which is comparable to that of a steel material, while keeping the corrosion and wear resistance of Co-based alloy. The Co-based alloy powder of this invention has a particle size of 1 to 200 μm. This invention enables the production of industrial product made by lamination shaping with high hardness & toughness while keeping the corrosion and wear resistance of Co-based alloy.

Product Application

- ☐ Industrial product that treats product with severe corrosion resistance
- ☐ Sliding part

IP Data

IP No.	:	JP7036413
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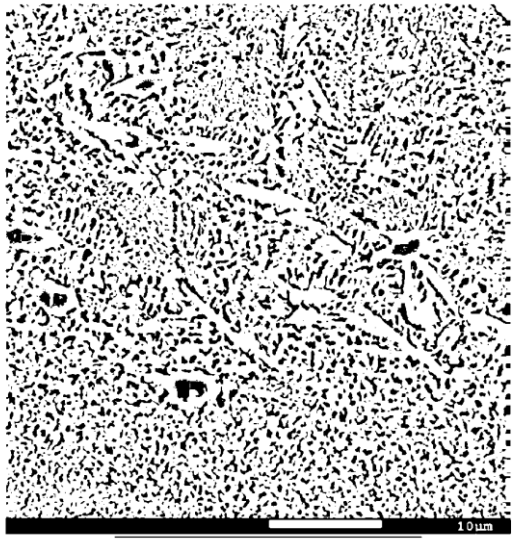
Admin No.	:	T16-191

Fine carbides are uniformly dispersed in a network-like structure in the microstructure of a body obtained by the lamination shaping



Related Works

[1] CHIBA Akihiko, Possibility of Co-Cr-Mo alloy prosthesis by electron beam lamination shaping, Materia 57 (2018) 150–154.

Contact

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