Claims

1. A composite material manufacturing method comprising:
an additive manufacturing step whereby a composite powder containing ceramic and metal is either :

a) deposited over a substrate;
b) heated until the composite powder had melted; and
c) allowed to solidify;

or

heated prior to being deposited over a substrate so that it solidifies on the substrate;

enabling voids within the composite powder to form a layer of composite material containing the ceramic and the metal; and

by repeating the above steps depositing fresh composite powder onto the layer, an additively manufactured part of more than one stacked solidified layer is formed;

a remelting step of remelting a surface of the additively manufactured part; and
a heat treatment step, after the remelting step, of applying heat treatment in a temperature range of 800 to 1400 ℃ after the remelting step.

2. The composite material manufacturing method according to claim 1, further comprising a cutting step on the additively manufactured part ℃ after the heat treatment step.

3. The composite material manufacturing method according to claim 1 or claim 2, wherein the ceramic is tungsten carbide, and the metal is cobalt.

4. The composite material manufacturing method according to any one of the preceding claims, wherein the staying time of the heat treatment step is from 20 to 90 minutes.

5. A composite material comprising a ceramic phase and a metallic phase, wherein a porosity of a region of the composite material in a thickness range of at least 100 μm from a surface of the composite material is less than or equal to 10 %, and wherein when the composite material is cemented carbide, a mass fraction of an η phase included in the composite material is less than or equal to 10 %, the composite material having rapidly solidifying structures.

6. The composite material according to claim 5, wherein the ceramic phase is tungsten carbide, and the metallic phase is cobalt.