CLAIMS

WHAT IS CLAIMED IS:

1. A method for producing a TiAl intermetallic compound powder in which a cutting chips of a TiAl intermetallic compound obtained without hydrogen embrittlement is passed through a thermal plasma flame for a spheroidizing treatment.

2. The method for producing a TiAl intermetallic compound powder according to claim 1, wherein a size of the cutting chips is 500 μm or less.

3. The method for producing a TiAl intermetallic compound powder according to claim 1 or 2, wherein the power of the thermal plasma flame is 10 to 250 kW.

4. The method for producing a TiAl intermetallic compound powder according to any one of claims 1 to 3, wherein the thermal plasma flame is a radio frequency plasma flame.

5. The method for producing a TiAl intermetallic compound powder according to any one of claims 1 to 4, wherein an operating gas of the thermal plasma flame is an inert gas.

6. The method for producing a TiAl intermetallic compound powder according to any one of claims 1 to 5, wherein a carrier gas used to supply the cutting chips to a region of the thermal plasma flame is an inert gas.

7. A TiAl intermetallic compound powder of which a cross section has a porosity of 0 to 0.4 area% and a hydrogen content is less than 0.1 mass%.

8. The TiAl intermetallic compound powder according to claim 7, wherein an area circularity in a secondary projection image is 0.9 or more for 90% or more of an entire number of powders.

9. The TiAl intermetallic compound powder according to claim 7 or 8, wherein a particle diameter is 1 to 250 μm as a 50% particle diameter (D50) in volume-based cumulative particle size distribution.

10. The TiAl intermetallic compound powder according to any one of claims 7 to 9, wherein a chemical composition has 10% to 80% of Al by a mass percentage and the rest is Ti

and impurities.

11. The TiAl intermetallic compound powder according to claim 10, wherein the chemical composition further contains one or two elemental species of Nb: 20.0% or less and Cr: 20.0% or less by a mass percentage.

12. The TiAl intermetallic compound powder according to claim 10 or 11, wherein the chemical composition further contains one or two or more elemental species of V, Ta, Mn, B, Si, C, W, and Y at 20.0% or less for each by a mass percentage.

13. The TiAl intermetallic compound powder according to any one of claims 7 to 12, wherein the TiAl intermetallic compound powder is used in a powder metallurgy method or a layer molding method.

14. The method for producing a TiAl intermetallic compound powder according to claim 5, wherein a dehydrogenation treatment is not performed on the TiAl intermetallic compound powder after the spheroidizing treatment.

15. The TiAl intermetallic compound powder according to claim 7, wherein the hydrogen content is 0.002 mass% or less.