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Number of documents: 5

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|----------------------------|--|
| JP07188816 | TiAl basic alloy
NIMS - NATIONAL INSTITUTE FOR MATERIALS SCIENCE |
| JP07242967 | Tial base alloy having high strength performance at high temperature
NATL RES INST FOR METALS NIMS - NATIONAL INSTITUTE FOR MATERIALS SCIENCE |
| JP61041740 | Heat-resistant alloy based on intermetallic compound TiAl
NATL RES INST FOR METALS NIMS - NATIONAL INSTITUTE FOR MATERIALS SCIENCE |
| JP06146031 | Method for suppressing high-temperature oxidation of tial-base intermetallic compound and its product
NIMS - NATIONAL INSTITUTE FOR MATERIALS SCIENCE |
| JP11061298 | Titanium-aluminum intermetallic compound-base alloy and its production
NIMS - NATIONAL INSTITUTE FOR MATERIALS SCIENCE |

TiAl basic alloy JP07188816

<ul style="list-style-type: none"> • Patent Assignee NIMS - NATIONAL INSTITUTE FOR MATERIALS SCIENCE • Inventor SHINKI MINORU HASHIMOTO TAKENORI NAKAMURA MORIHIKO • International Patent Classification C22C-014/00 	<ul style="list-style-type: none"> • Publication Information JPH07188816 A 1995-07-25 [JP07188816]     • Priority Details 1993JP-0346906 1993-12-27 								
<ul style="list-style-type: none"> • Fampat family <table style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 30%;">JPH07188816</td> <td style="width: 10%; text-align: center;">A</td> <td style="width: 20%;">1995-07-25</td> <td style="width: 30%;">[JP07188816]</td> </tr> <tr> <td>JP3194004</td> <td style="text-align: center;">B2</td> <td>2001-07-30</td> <td>[JP3194004]</td> </tr> </table> 		JPH07188816	A	1995-07-25	[JP07188816]	JP3194004	B2	2001-07-30	[JP3194004]
JPH07188816	A	1995-07-25	[JP07188816]						
JP3194004	B2	2001-07-30	[JP3194004]						

- **Abstract:**

(JP07188816)

PURPOSE: To obtain a high strength and high ductility TiAl alloy having high ductility at ordinary temp. and easy to form and work. CONSTITUTION: This high strength and high ductility TiAl-based alloy contains 33-59mol% Ti, 35-47mol% Al and 6-20mol% V, contains coexistent gamma-, alpha2- and beta-phases in a uniformly dispersed state and has isometric grains having <=10µm average grain diameter size.

Claims

(JP07188816)

Claims machine translated from Japanese

1. Ti33-59 mol %, Al35-47

The mol % and the V6-20 mol % to contain, I phase, I [2] phase

And high intensity 3 phases of I phase have coexisted & high ductile Ti where
Al basic alloy.

2. Axial grain of even crystal grain size 10 .micro.m or less and the like possession

Ti of the claim 1 where 3 phases which it does, coexist are uniformly dispersed

Al basic alloy.





3. Claim at the time of alloying 1 or 2, in V

Replacing, or with V Nb, Mo, Hf and M

The element of 1 kinds or more which are selected from n the 6-20 mol % content

The TiAl alloy which is done.

Tial base alloy having high strength performance at high temperature JP07242967

<ul style="list-style-type: none"> • Patent Assignee NATL RES INST FOR METALS NIMS - NATIONAL INSTITUTE FOR MATERIALS SCIENCE • Inventor HASHIMOTO KENKI NOBUKI MINORU NAKAMURA MORIHIKO DOI HARUO • International Patent Classification C22C-014/00 • US Patent Classification PCLO=148421000 PCLX=420418000 PCLX=420419000 • CPC Code C22C-014/00 	<ul style="list-style-type: none"> • Publication Information JPH07242967 A 1995-09-19 [JP07242967]     • Priority Details 1994JP-0054807 1994-03-02 												
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JPH07242967	A	1995-09-19	[JP07242967]										
US5542992	A	1996-08-06	[US5542992]										
JP2903102	B2	1999-06-07	[JP2903102]										

- **Abstract:**

(US5542992)

A TiAl base alloy containing 46 to 54 mol % of Ti and 46 to 52 mol % of Al in which Sb is added within a range of 0.1 to 1 mol %, at least one element of Hf and/or Zr is further added within a range of 0 to 3 mol %, and three phases of a gamma phase, an alpha 2 phase and Sb-rich phase coexist.

Claims

(US5542992)

What is claimed is:

1.





A TiAl base alloy consisting essentially of 46 to 54 mol % Ti, 46 to 52 mol % Al, 0.1 to 1 mol % Sb, and 0 to 3 mol % of at least one element selected from the group consisting of Hf and Zr as an additive, said alloy having a three-phase microstructure where a GAMMA phase, an ALPHA 2 phase and an Sb-rich phase coexist.

2. A TiAl base alloy as claimed in claim 1, wherein both said ALPHA 2 and Sb-rich phases have shapes in fine particle size, each of which is contained in said alloy within a range of 2 to 10 vol. %.

3. A TiAl base alloy as claimed in claim 1, wherein at least one element selected from the group consisting of Sn, Mn and Si is further added as an additive within a range of 0 to 3 mol %.

Heat-resistant alloy based on intermetallic compound TiAl

JP61041740

<ul style="list-style-type: none"> • Patent Assignee NATL RES INST FOR METALS NIMS - NATIONAL INSTITUTE FOR MATERIALS SCIENCE • Inventor HASHIMOTO KENKI DOI HARUO TOKUZOU TSUJIMOTO OSAMU NAKANO MINORU NOBUKI • International Patent Classification C22C-014/00 • US Patent Classification PCLO=420418000 PCLX=420420000 • CPC Code C22C-014/00 	<ul style="list-style-type: none"> • Publication Information JPS6141740 A 1986-02-28 [JP61041740]     • Priority Details 1984JP-0161601 1984-08-02 																
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JPS6141740	A	1986-02-28	[JP61041740]														
JPS62215	B2	1987-01-06	[JP87000215]														
US4661316	A	1987-04-28	[US4661316]														
JP1395560	C	1987-08-24	[JP1395560]														

- **Abstract:**

(US4661316)

A heat-resistant alloy comprising an alloy based on an intermetallic compound TiAl composed of 60 to 70% by weight of titanium and 30 to 36% by weight of aluminum, and 0.1 to 5.0% by weight of manganese.

Claims

(US4661316)

What is claimed is:

1.

A heat-resistant alloy consisting essentially of (1) an alloy based on an intermetallic compound TiAl composed of 60 to 70% by weight of titanium and 30 to 36% by weight of aluminum and (2) 0.1 to 5.0% by weight of manganese.

2. The alloy of claim 1 wherein the content of aluminum is 31 to 35% by weight.

3. The alloy of claim 1 wherein the amount of manganese is 0.5 to 3.0% by weight.

4. The alloy of claim 1 which further contains at least one element selected from the group consisting of

(a) zirconium in an amount of 0.6 to 2.8% by weight;

(b) niobium in an amount of 0.6 to 4.0% by weight;

(c) vanadium in an amount of 0.6 to 1.9% by weight;

(d) tungsten in an amount of 0.5 to 1.2% by weight;

(e) molybdenum in an amount of 0.5 to 1.2% by weight;

and

(f) carbon in an amount of 0.02 to 0.12% by weight.

Claims

(JP06146031)

1. Aluminum content at weight 32% or more

TiAl fund intergeneric chemical compound under 36%, aluminum nitride

Although changes to alumina, being sufficient, at the same time with cubic measure 3

The oxygen under 00ppm or the oxygen of the quantity which is suitable to this

In the nitrogen gas atmosphere which includes the oxidation characteristic gas which it discharges, the 1000.deg.C from here

The TiAl basis which features that you keep at temperature under the upper 1150.deg.C

Control method of high-temperature oxidation the intermetallic.

2. Content of the aluminum 32% from here at weight

The TiAl fund intergeneric chemical compound which is under upper 36%, aluminum nitride

Although [niumu] changes to alumina, being sufficient, at the same time the body

With the product the oxygen under 300ppm or the quantity which is suitable to this

In the nitrogen gas atmosphere which includes the oxidation characteristic gas which discharges oxygen, 10

Keeping at temperature under the 1150.deg.C above the 00.deg.C, it can, the alloy chart

Surface layer layer of the oxide and the nitride of Ti is low the acid of Al of titanium content

Being formed from 2 layer isolation structure layer of layer of the chemical material

The hot oxidation resistance TiAl fund intergeneric chemical compound product which is made feature.

3. Aluminum content at weight 32% or more

Under 36%, at the same time manganese at weight maximum of 4% TiAl which is included

Fund intergeneric chemical compound, aluminum nitride oxidation [aruminiu]

Although it changes to [mu], being sufficient, at the same time with cubic measure the acid under 300ppm

The oxidation characteristic moth which discharges the element or the oxygen of the quantity which is suitable to this

In the nitrogen gas atmosphere which includes [su], under the 1150.deg.C above the 1000.deg.C warm

The manganese content TiAl fund being attached which features that you keep at degree

Control method of high-temperature oxidation the between chemical compound.

4. Content of the aluminum 32% from here at weight

Under upper 36%, at the same time manganese at weight maximum of 4% Ti which is included

Al fund intergeneric chemical compound, aluminum nitride oxidation Al mini-

Although it changes to [umu], being sufficient, at the same time with cubic measure under 300ppm

The nitrogen gas which includes oxygen or the oxygen of the quantity which is suitable to this

In the surrounding air, keeping under the 1150.deg.C above the 1000.deg.C, it can, combination

Gold surface layer is low the oxide and the nitride of Ti of aluminum content

From layer and aluminum concentrated layer being formed special

The hot oxidation resistance manganese content TiAl fund intergeneric chemical combination which is made collection/symbol

Thing product.

Claims

(JP11061298)

Claims machine translated from Japanese

1. Being the TiAl intermetallic basic alloy,

It possesses the organizational form which to the I grain boundary I phase precipitated to film condition TiAl which features that it consists of uniform minute and the like axial grain organization Intermetallic basic alloy.

2. Crystal grain size uniformity of abbreviation 30 .micro.m or less minuteness and the like

The alloy of the claim 1 which consists of axial grain organization.

3. As for TiAl intermetallic basic alloy, the group

Forming,

Ti-Al-X

(X, Cr, V, 1 kinds inside Nb, Mo and W from here

The element above is shown, it is the atomic %, 0.1-10)

So the claim the alloy of 1 which is displayed or 2.

4. Claim no TiAl of 1 or 3

Being manufacturing method of the intermetallic basic alloy, hot I single-phase territory

Directly by cooling from the limits, [huezari] I organization raw

Forming, next 2 phases or .alpha.+ of .alpha.+gamma. or .beta.+gamma.

It tempers in 3 phase territory of .beta.+gamma. and it features that aging it does

Production method of TiAl intermetallic basic alloy.

5. Cooling rate as an abbreviation 10-40K/s cold

The claim 4 which makes [huezari] I phase form by ***

Production method.