

Title (en)

A method of heat treating titanium aluminide

Title (de)

Verfahren zur Wärmebehandlung von TiAl-Legierungen

Title (fr)

Procédé pour le traitement thermique des alliages de TiAl

Publication

EP 1507017 A1 20050216 (EN)

Application

EP 04254344 A 20040721

Priority

GB 0319061 A 20030814

Abstract (en)

A gamma titanium aluminide alloy consisting of 46at% aluminium, 8at% niobium, up to 0.07at% carbon and the balance titanium plus incidental impurities has an alpha transus temperature $T_{\alpha} = 1335$ DEG C. The gamma titanium aluminide alloy was heated to a temperature $T_1 = 1360$ DEG C and was held at $T_1 = 1360$ DEG C for 1 hour or longer. The gamma titanium aluminide alloy was fluidised bed, or salt bath, quenched to a temperature T_2 , where $900 \text{ DEG C} < T_2 < 1200 \text{ DEG C}$, and was held at temperature T_2 for a sufficient time to allow the massive transformation to go to completion. The gamma titanium aluminide alloy was heated to a temperature $T_3 = 1300 \text{ DEG C}$ or 1320 DEG C and was held at T_2 for 4 hours. The gamma titanium aluminide alloy was air cooled to ambient temperature. The gamma titanium aluminide alloy has a fine duplex microstructure comprising differently orientated alpha plates in a massively transformed gamma matrix. The heat treatment reduces quenching stresses, allows larger castings and a broader range of titanium aluminide alloys to be grain refined. <IMAGE>

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C22F 1/18

IPC 8 full level

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CPC (source: EP US)

C22F 1/183 (2013.01 - EP US)

Citation (search report)

[DPA] EP 1378582 A1 20040107 - ROLLS ROYCE PLC [GB]

Citation (examination)

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- US 5205875 A 19930427 - HUANG SHYH-CHIN [US]
- EP 1308529 A1 20030507 - MITSUBISHI HEAVY IND LTD [JP]

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EP1889939A3; EP1813691A1; CN105039886A; EP3360983A1; US7704339B2

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