

Manufacturing

TiAl TNM[®]-B7 remelt stocks are manufactured by VAR skull melting and centrifugal casting in permanent molds based on a single or double VAR melted consumable electrode. Consumable electrodes (ingots) are made up of compacted Ti sponge, Aluminum and master alloys.

Applications

TiAl TNM[®]-B7 remelt stocks are used as feed stock materials for subsequent investment casting operations in order to manufacture net shape or oversized cast parts. The alloy exhibits very high strength levels up to about 800 °C due to its fine grained microstructure. Thermomechanical properties can be further improved with regard to strength and/or ductility by thermal treatments.

Chemical Composition

Ti -44Al -4Nb -0.7Mo -0.1B (at.-%)

Alloying Elements (wt.-%)

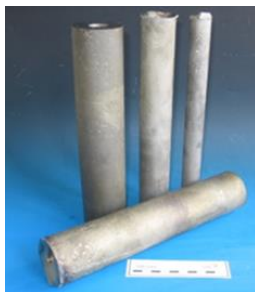
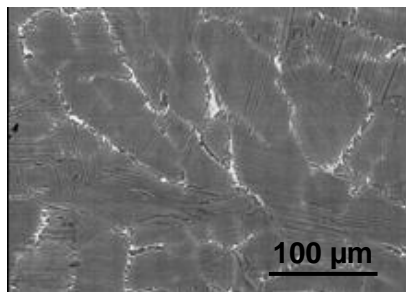
Ti	Al	Nb	Mo	B
bal.	29,1	9,1	1,65	0,026
	+/- 0.8	+/- 0.5	+/- 0.4	+/- 0.008

Impurities (wt.-ppm)

H	N	O	C	Fe	Ni	TOE
< 50	< 200	< 800	< 200	< 1000	< 500	< 1000

Forms of Delivery

Cylindrical slugs of 30 mm – 70 mm diameter and up to 300 mm length. Surface conditions as-cast. Other sizes and individual customer specifications on request.



Physical Properties

Density:	4.15 g/cm ³
Hardness:	330 HV10
Youngs Modulus (RT):	150 GPa
(700 °C):	130 GPa

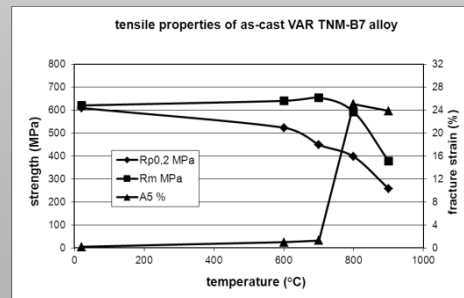
Microstructure consists of:

- α_2/γ lamellar colonies
- globular $\beta/B2$ grains
- globular γ -TiAl grains
- globular α_2 -Ti₃Al grains

T_{eutectoid}: 1160 °C

T _{α -transus}: 1280 °C

Working Temp.: up to 800 °C



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