

Manufacturing

TiAl TNM[®]-B1 Ingots are manufactured by double or triple VAR melting with consumable electrodes. Consumable electrodes are made up of compacted Ti sponge, Aluminum and master alloys.

Applications

TNM[®]-B1 Ingots are used as feed stock materials for further thermomechanical processing to semi-finished products or γ -TiAl components.

Chemical Composition

Ti -43.5Al -4Nb -1Mo -0.1B (at.-%)

Alloying Elements (wt.-%)

| Ti | Al | Nb | Mo | B |
|------|---------|---------|---------|----------|
| bal. | 28.6 | 9.2 | 2.3 | 0.026 |
| | +/- 0.7 | +/- 0.5 | +/- 0.5 | +/- 0.05 |

Impurities (wt.-ppm)

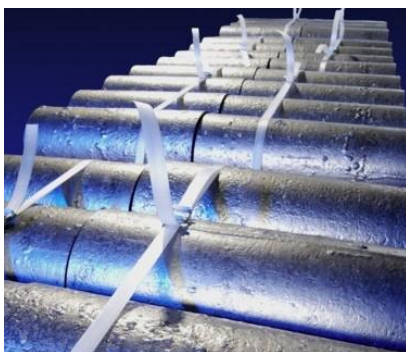
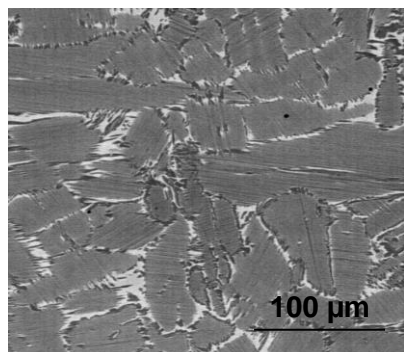
| H | N | O | C | Fe | Ni |
|------|-------|-------|-------|--------|-------|
| < 50 | < 200 | < 800 | < 200 | < 1000 | < 500 |

Forms of Delivery

Cylindrical ingots of 180 mm – 280 mm diameter and up to 1.200 mm length.

Surface conditions as-cast or mechanically machined.

Other sizes and individual customer specifications on request.



Physical Properties

Density: 4.16 g/cm³

Hardness: 350 HV10

Youngs Modulus (RT): 150 GPa

(700 °C): 130 GPa

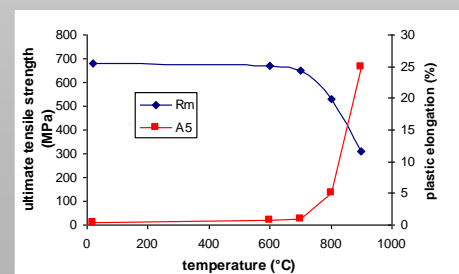
Microstructure consists of:

- 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}: 1250 °C

Working Temp.: up to 850 °C



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