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Grain refinement of cast titanium alloys via trace boron addition

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Abstract

The grain size of as-cast Ti-6Al-4V is reduced by about an order of magnitude from 1700 to 200 μm with an addition of 0.1 wt.% boron. A much weaker dependence of reduction in grain size is obtained for boron additions from >0.1% to 1.0%. Similar trends were observed in boron-modified as-cast Ti-6Al-2Sn-4Zr-2Mo-0.1Si.



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Keywords

Titanium alloys; Casting; Grain refining; Microstructure

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