

The influence of post-HIP heat-treatments on the tensile and HCF properties of Ti6Al4V

Wednesday, 6 December 2017 11:35 (25 minutes)

Samples of gas-atomised Ti6Al4V powder have been HIPped after which they were cooled at different rates in the HIP and/or subsequently heat treated in order to obtain very different microstructures. Microstructural observations have been carried out using scanning and transmission electron microscopy. The samples were tested in tension and in fatigue in order to assess the influence of the different heat treatments on these properties. Similar heat treatments have been carried out on ingot-route Ti6Al4V and the microstructures and properties compared with those of the HIPped powder samples. Transmission electron microscopy has been used to define the influence of the different microstructures on dislocation behaviour in an attempt to understand the observed differences in properties and these results will be presented.

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Materials

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Session Classification: Materials