

**Microstructure and mechanical properties of heat treated selective laser melting manufactured Ti-6Al-4V.** / D. D. Malka-Markovitz, A. Katsman, A. Shirizly, M. Bamberger. / Nano Studies. – 2015. – # 12. – pp. 33-42. – eng.

Investigation of microstructural evolution of pre and post heat treatment (HT) Selective Laser Melting (SLM) Ti-6Al-4V is presented. As received SLM samples composed of fine acicular  $\alpha'$  martensite within prior  $\beta$  grains were solution treated above the  $\beta$ -transus temperature, followed by a complementary HT within the  $\alpha + \beta$  range. Non-monotonic change of microhardness as a function of HT temperature was observed. After low HT temperatures, the microstructure was composed mainly of martensitic  $\alpha'$ -phase, whereas, after high temperatures HT, bi-phasic microstructure with needle-like elongated  $\alpha$ -phase grains and a mixture of lamellar  $\alpha+\beta$  in between, was observed as the dominant microstructural component. The dependence of the properties and microstructure on heat treatment temperature will be discussed. Fig. 8, Tab. 4, Ref. 22.

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