Specimens of Ti-Al-Nb based alloys were prepared by mechanical alloying. Ti and Nb pre-cut to small pieces were charged by hydrogen at 800°C for 7h in hydrogen gas with light over-pressure. Pieces of Ti, Nb and Al were then milled for 300 hours with 120 turns per minute in Fritsch Pullverisette 6 planetary ball mill. The study of powder characteristics was realized and particle size and distribution were evaluated. The laser analysis using device Analysette 22 Compact determined the particle size varying from 0.3 to 300 ?m with the size distribution of: 53 % above 10 ?m, 47 % below 10 ?m, thereout 21 % was below 1 ?m. The SEM analysis of powder microstructure has shown that big agglomerates containing particles of the size below 250 nm were formed. The milling without the process control agent (PCA) (dispersant such as hexane) didn’t allow to dash the agglomerates during laser analysis measurement neither by means of ultrasound. Thus, measured sizes of particles and their statistical distribution established are of orientation order. The EDAX microanalysis showed that mechanically alloyed mixture on the base of Ti-Al-Nb with the composition of 53.52 % Ti, 33.95 % Al and 12.53 % Nb was successfully prepared. The consolidation and sintering of powder mixture were provided. The presence of TiAl and Ti3Al intermetallic phases were established from the subsequent microstructure study by means of the SEM and EDAX analysis. Further, porosity size and distribution were estimated.

**Autor nedodal plný text příspěvku.**

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