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Minyu Fan, Joseph Domblesky, Kai Jin, Liang Qin, Shengqiang Cui, Xunzhong Guo, Naksoo Kim, Jie Tao

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Minyu Fan[a], Joseph Domblesky[b], Kai Jin[c], Liang Qin[a], Shengqiang Cui[a], Xunzhong Guo[a], Naksoo Kim[c], Jie Tao[a,*]

[a] College of Material Science and Technology, Nanjing University of Aeronautics and Astronautics, Nanjing 211106, PR China

[b] Department of Mechanical Engineering, Marquette University, Milwaukee 53005, USA

[c] Department of Mechanical Engineering, Sogang University, Seoul 121742, Korea

* Corresponding author. Tel.: +86-25-5211-2911

E-mail addresses: taojie@nuaa.edu.cn (Jie Tao)

Abstract: It is of great significance in high-temperature aeroengine applications for large-surface-area Ti-Al laminate composites to be fabricated into Ti-Al_3Ti parts by plastic forming and subsequent vacuum hot pressing. Then the original layer thicknesses have an important influence on the interface bonding and mechanical properties of Ti-Al laminate composites, but only few reports about it have been published so far. In the present study, vacuum hot pressing was employed to fabricate Ti-Al laminate composites using Ti and Al foils of different thickness. The resulting interface bond and mechanical properties of Ti-Al laminate composites were then studied to determine the optimum sheet configuration and thickness. To further assess their formability and develop a forming limit diagram (FLD), 0.1/0.15 Ti-Al laminate composites were operated on