CT-86: Development of Technologies for Producing Sheets and Foils from Affordable and Structurally Efficient Titanium (ASET)

This project is focused on evaluating the feasibility of forming sheet stock from Affordable and Structurally Efficient Titanium (ASET) produced by small boron additions to conventional Ti alloys. By developing an inexpensive process to make them from cast titanium alloy ingots, it will significantly enhance efficiency by reducing expensive and time-consuming processing steps. Therefore, it will expand the affordability and subsequently increase the range of titanium applications.

Applications of titanium alloys take advantage of its unique combination of properties, namely high specific strength and corrosion resistance. Plates and sheets have been used in applications concerning aircraft, aerospace, military, medical, chemical, and construction industries. Phase I of the project primarily deals with the feasibility study, looking to establish and optimize processing conditions to produce sheet from cast titanium ingots, affordability of titanium alloy sheet products via micro boron additions, and enhancing structural efficiency in titanium alloy sheet products. Phase II will then shift toward the commercial process development by producing sheet and foil, evaluating its properties in establishing suitability for final product fabrication and service, identifying commercial applications, demonstrating feasibility in prototypes and will then ultimately focus on developing processes and commercialization for the identified applications.

The CT-86 project combines the strengths of industry, academia, and government members to develop new industrial materials and processes, improve the performance of manufacturing processes, identify alternatives to existing materials and processes, and improve the overall quality of processed materials.

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