

October 24, 2007

The National Energy Technology Laboratory Wins the FLC Mid-Atlantic Region Technology Transfer Award for Commercialization of the Armstrong Powder Process

The Mid-Atlantic Region of the Federal Laboratory Consortium this year presented the Regional Excellence in Technology Transfer Honorable Mention Award to Mr. Paul Turner, Mr. Edward Argetsinger, Dr. Paul Jablonski, Mr. Stephen Gerdemann, Dr. Craig A. Blue and Mr. William H. Peter of the DOE National Energy Technology Laboratory for work on "the Armstrong Powder Process."

Titanium is recognized as a superior material for many structural applications due to its high strength, low density, excellent corrosion resistance, and good ballistic characteristics. The cost of titanium has doubled annually for the last three years and order lead times have doubled over a two year time period. Prices of \$35 to \$50 per pound and 12 to 18 month lead times for Ti and Ti alloy plate are common. The high cost and extremely long production lead times have forced engineers to use alternative materials resulting in significantly reduced performance. At present, titanium is produced using the slow, batch Kroll Process. In 1998, a small startup company, International Titanium Powder, LLC (ITP) of Lockport, IL contacted NETL and asked for assistance in evaluating powder produced from their then patent-pending Armstrong Process. The Armstrong Process continuously produced titanium powder and there are plans to continuously produce titanium alloy. At that time, the product contained unacceptable levels of contaminants.

Over the next 9 years, through a series of CRADAs, Division Director Paul Turner, NETL scientists Stephen Gerdemann, Paul Jablonski and technician Edward Argetsinger worked with ITP engineers to improve the ancillary equipment associated with the Armstrong Process to continually improve the titanium powder and to make alloyed powder. Later, Oak Ridge National Laboratory (ORL) Division Director Craig Blue and scientist William Peter were brought on board to lead the efforts to formulate a single step, solid state compaction process to produce revolutionary low cost products using Armstrong products.

ITP began marketing its products commercially in October of 2006. In May, 2007, ITP broke ground on a new, 4,000,000 pound/year production facility that should be online in 2008. Economic studies show that ITP alloyed powder can be combined with low-cost processing to produce plate that will retail at approximately 50 percent less than the retail price of plate using the Kroll process. This increased capacity at a reduced cost has the potential to open up many new markets for titanium. The Department of Defense is considering funding increased capacity of the Armstrong process as a method to guarantee a consistent titanium cost and supply for defense contractors supplying DoD with armored vehicles, etc.

ITP and its development team, including NETL and ORL, were the recipients of an R&D 100 award to be officially awarded in October 2007.

One of the most coveted awards in the field of technology transfer, FLC awards for Excellence in Technology Transfer recognize laboratory employees who have accomplished outstanding work in the process of transferring Federally-developed

technology to the marketplace. The award was made on September 21 at the region's annual meeting.

The Federal Laboratory Consortium is comprised of the technology transfer offices of all of the Federal laboratories throughout the country while its Mid-Atlantic Region focuses on the 70 Federal laboratories in DC, DE, MD, PA, VA and WV.

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