

NEWS RELEASE
ADVANCED CERAMETRICS RECEIVES \$12 MILLION CONTRACT
FROM THE ARMY RESEARCH LAB

- Boron Carbide Fiber Development for Tougher Aluminum -

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POC: Bud Cass, President; Jerry Ruddle EVP, Marketing and Business Development

Advanced Cerametrics (ACI) today announced the receipt of a 5 year Cooperative Agreement contract from the U.S. Army Research Laboratory (Aberdeen Proving Ground, MD) to develop and scale up a large volume continuous fiber process technology to manufacture very small diameter Boron Carbide fiber for lightweight composites and aluminum metal matrix composites in particular. Targeted applications are lightweight armor, structural components and consumer goods. This new fiber capability will leverage ACI's patented Viscous Suspension Spinning Process (VSSP), which can make fiber from any ceramic material, creating flexible ceramics that bend rather than break. Boron carbide is the second hardest material known behind diamond and has never before been available in fiber form. Boron carbide is an excellent choice for reinforcing of variety lightweight materials due to its high stiffness, good chemical compatibility and excellent high temperatures stability.

The Army has striven to reduce its systems weight. Currently, solid ceramic, steel, titanium, aluminum and other exotic materials are used in armor systems. These materials can work well, but tend to be either heavy or low strength. Aluminum is an important lightweight armor candidate material due to its easy formability, low cost and existing manufacturing infrastructure. Aluminum however is soft and low strength, and so is not the best armor material without significant toughening and hardening. Very hard materials like boron carbide make excellent armor, due to their high hardness, but they are extremely expensive to produce. ACI's VSSP solution inexpensively produces boron carbide ceramic fiber, which can be added to aluminum in wide ranges of volumes to produce a much tougher and stiffer metal matrix composite. ACI's process is unique in producing very high purity boron carbide fiber through a high temperature reaction bonding mechanism where the cellulose base of ACI's VSSP fiber process bonds to the boron for an effective combined material structure.

With the completion of the development effort, the new boron carbide fiber will be available as an important additive for strengthening aluminum products ranging from engine block components to other products in the transportation, aviation, industrial and consumer markets.

About Advanced Cerametrics, Inc:

Advanced Cerametrics, Inc, based in Lambertville, NJ, with manufacturing facilities in Findlay, Ohio, is a 61 year old 'start-up,' which reinvented itself from an old line manufacturer of ceramic components to a very high tech producer of innovative, flexible ceramics, in fiber form, to solve a variety of reinforcement applications where unique

fibers of this type have never been available before. The fibers, when made from piezoelectric ceramic materials are also used to harvest waste mechanical energy and turns that into useful amounts of electricity to power hand held and industrial devices.

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