



**SNAPSHOT**

**The Technology**

The first generation Hybrid Composite Armor (HCA), is a novel light weight, high-strength material which combines the advantages of a newly invented high specific strength collapsible energy absorber and other armor grade materials. While exceeding the standards of National Institute of Justice (NIJ) 0101.06 for a level III test, ballistic testing of HCA have shown a reduction on non-penetrating injuries by 30%. In comparison to ceramic based rigid structures that are heavy and restrict mobility, MetCel's solution is 10-15% lighter.

**The Opportunity**

The need for lightweight, high-strength materials is constantly increasing in many applications. Two leading areas are ballistic armor and aircraft manufacturing. Early opportunities are identified in the \$1.9 billion body armor market and the \$118 billion aircraft industry.

**The Goal**

MetCel is seeking \$300,000 in funding to establish operations and further developments.

MetCel, based in Tulsa, operates as an Oklahoma-based Limited Liability Company (LLC) that has developed advanced patent pending composite materials. Recently, MetCel won the \$25,000 first place prize in the 2010 RIATA Business Plan Competition conducted by the School of Entrepreneurship at Oklahoma State University (OSU), simultaneously winning the "Best Technology" award. This technology was also supported by Technology Business Assessment Group (TBAG) from Oklahoma State University for commercialization purposes. This technology is a recent spin-off from OSU with material developments originating at NASA, and has been further developed with DoD sponsors since 2004.

MetCel's market includes applications that require lightweight high-strength materials. A first application of these materials is in body armor. MetCel's composites are optimally designed for withstanding or absorbing impact energy. Potential target markets are extensive; however, the immediate market is the defense sector. A high volume user pool has also been identified in the high-performance aerospace industry. Other potential customers could be naval or space related. MetCel is currently on track to manufacture the first generation product by 2011. These will be a novel class of advanced specific strength materials that will serve as an economic yet superior replacement for conventional honeycombs and other similar materials.

"The most powerful feedback we can receive is directly from our potential customers," said Amir Bhochhibhoya, Business Development Manager, and MetCel. "Our target customers are WBT Innovation Marketplace attendees. We hope to receive interest from venture capitalists, and organizations such as the Department of Defense that would benefit from our technology."

The United States Department of Defense reported approximately 35,000 (2001-2009) military personnel injured in the field, 20% of which are directly due to gunshots. A majority of these casualties are related to Behind Armor Blunt Trauma (BABT) that is non-penetrating injuries resulting from high kinetic energy transfer. The current armor solutions require trauma plates in localized areas of bullet resistant vests to protect vital regions like the solar plexus, lower torso, etc from BABT. The combination is heavy, and limits the mobility. One of MetCel's solutions can reduce BABT by 30% while being 10-15% lighter than existing solutions.

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