



For immediate release

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Graphene produced in ceramic composites

Medford, Oregon. August 18, 2021. -- Mag7 Technologies LLC has begun advance licensing of the technology to make polymer-derived graphene reinforced ceramic matrix composites (CMC). Trademarked **CeraGraphe™**, the ceramic-graphene slurry produced from the process can be used in hundreds, perhaps thousands, of applications, particularly where extreme heat is an issue. CeraGraphe™ precursor could work similarly in many CMC applications.

The process dramatically reduces the production cost of graphene in ceramics. Instead of starting with actual graphene (expensive), the process renders its own graphene out of inexpensive graphite, produced *in situ*, uniformly dispersed in the composite. The resulting graphene is *covalently bonded to the ceramic precursor throughout the matrix*. It is relatively cheap and highly adaptable, vastly expanding potential applications for graphene.

It is easily applied to preceramic polymers such as polysilazane, itself an extraordinary polymer with vast applications, but can be used with any ceramic precursor.

Consider how this chemistry can improve ceramic parts. For example, ceramic brakes, or ceramic bolts (in aircraft), etc. resist heat extremely well, but their mechanical properties diminish as they wear, so they need to be replaced frequently. Using graphene can increase the structural integrity and performance of those same ceramic brakes or bolts several fold. But until now the high cost and low availability of graphene has usually precluded its use.

Mag7 is the only company in the world known to have a process that enables *in situ* generation of graphene dispersed in a ceramic precursor. The process was developed for Mag7 by Alexander Lukacs, PhD., and Lucas Marin, Mag7 principals serving as Mag7's primary science and technology advisers. Over their careers they have invented many successful chemistries, some of which have been used in high profile technology projects or which have resulted in well-known popular brands.

Mag7 now offers licenses to apply the CeraGraphe™ process to any CMC. Mag7 is not a ceramics manufacturer and does not sell physical product other than small testing quantities of CeraGraphe™ “slurry” produced in its Oregon laboratory. Manufacturers can order limited quantities to test before purchasing a license to use the process.

The process is patent pending as “POLYMER-DERIVED, GRAPHENE REINFORCED CERAMIC MATRIX COMPOSITES,” U.S. Provisional Patent Application No. 63/211,545 to Lukacs (III) et al., filed June 16, 2021.”

Mag7 is seeking collaborations with engineering labs and academic institutions interested in furthering uses for this chemistry.

Technologies LLC is a technology marketing company based in Cheyenne, Wyoming. Formed in 2017, it maintains a lab in Medford, Oregon.

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