



A 21st Century Material for 21st Century Problems.

New Tech Ceramics is the exclusive manufacturer of a revolutionary ceramic material, AlMgB₁₄TiB₂, called "BAM".

- BAM is extremely hard and lubricious.
 - Hardness that makes it the third hardest material compared to industrial diamonds
 - Lubricity approaching Teflon
- BAM is heat tolerant.
- BAM is electrically conductive.
- BAM is non-reactive to and harder than titanium.

BAM TECHNOLOGY PLATFORMS

- Powder** – available in ready to press, ready to spray, and solid sintered and milled material
- Thin Film** – sputter PVD thin films
- Thick Film** – laser clad and plasma spray buildups
- Sintered Solid** – hot press and spark plasma sintered

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New Tech Ceramics, Inc.

BAM Application Opportunities

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BAM ADAPTABILITY AND BREADTH

BAM THIN FILM APPLICATIONS

BAM applied as a thin film can:

- make a cutting tool last 2x-3x longer when cutting highly abrasive titanium and carbon fiber and up to 7x for others.
- reduce or eliminate the need for lubrication in sliding, rolling, and rotating parts in machines, engines, transmissions, extrusion dies and molds.
- increase the surface hardness, eliminate heat treating, and reduce the carbon footprint of hardening.
- make surfaces like touch screens scratch resistant.
- create super hard slippery non-stick surfaces like for cookware.
- help sharp objects like scalpels retain their edge.
- give soft materials like aluminum and plastic a hard shell.

BAM POWDER APPLICATIONS



CUTTING TOOLS



ALUMINUM



PLASTICS



WAXES

- BAM powder may be used in applications where Teflon is easily dislodged because of its softness like in ski wax.
- BAM has the potential to be an additive to plastics and lubricating slurries in deep well mining applications.

BAM THICK FILM APPLICATIONS

BAM applied as a thick film can:

- increase the wear life of agricultural and construction equipment parts that contact rocks, soil, and crop debris.
- increase the time between change out of valves, pumps, and compressors by extending seal wear life.
- be used to build up worn surfaces like paper mill rolls.
- insulate large surfaces from the damaging effects of high heat for things like heat exchangers.
- make turbine engine blade tips wear longer.
- improve drilling equipment efficiency and wear life of valves and elbows.


BAM SOLID FORM APPLICATIONS

Armor Plating:

- BAM is about the weight of aluminum, but with 65% the hardness of diamonds making it a strong candidate for personal and vehicle armor plate.
- A solid tile of BAM is by weight less expensive than silicon carbide in use today.

Artificial Joints:

- BAM works bonds well with titanium and can be sintered together to form the ultimate joint.
- Initial toxicity testing with bone cells has shown to be positive.



ARMOR



JOINTS




ENGINES



OIL VALVES



AG EQUIP



PAPER ROLL

POWDER

THIN FILM

THICK FILM

SOLID FORM

