MComP™

INTEGRATE GREEN TECHNOLOGY WITHOUT SACRIFICING VOLUMETRIC PROPERTIES

MComP™ Micro/Nanocomposite Metals

MComP™ (Micro/Nanocomposite) hierarchically-structured super metals offer very high strength-to-weight ratios in magnesium and aluminum alloys.

MComP's™ ultra high strength nano/microcomposite is ideal for use in stiffness and/or strength-driven designs where volumetric properties cannot be sacrificed and has many of the same benefits of beryllium without the negative health and safety problems.

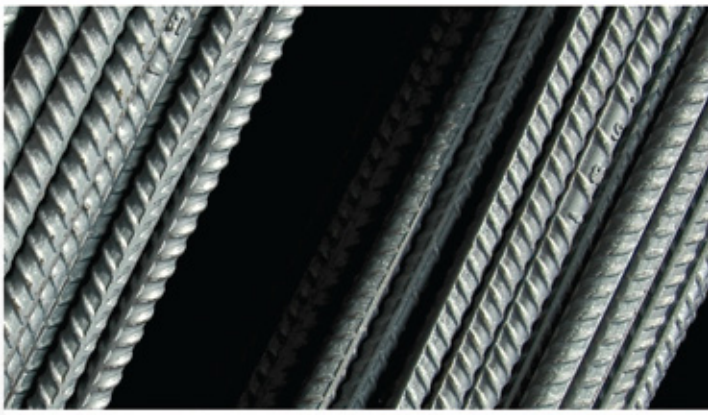
Powdermet Uses Green Alternatives To Elements Of Concern.

Powdermet develops, matures, and transitions breakthrough materials innovations that enable reduced weight, resource consumption, environmental footprint and life-cycle costs, while increasing energy-efficiency based on value-creation gained through engineered nano-scale features and hierarchically structures of metal and/or ceramic phases in a structure.

Powdermet's technology is based on the design and production of engineered particle building blocks that incorporate nano- and micro-scale structural features developed into a safe, free-flowing particle delivery system.

MComP™ Advantages:

- Enable 100% uniform loading of phases
- Enables unique property mixtures
- Built-in control over interface properties and phase distribution
- Non-equilibrium microstructures
- Takes advantage of nano-grain property enhancements (strength, hardness, wear resistance, corrosion resistance)
- Nano-level control over phases/chemistry



micro- and nano-metallic systems

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WWW.POWDERMETINC.COM

POWDERMET INC.
CLEAN, GREEN, SUSTAINABLE MATERIALS SOLUTIONS

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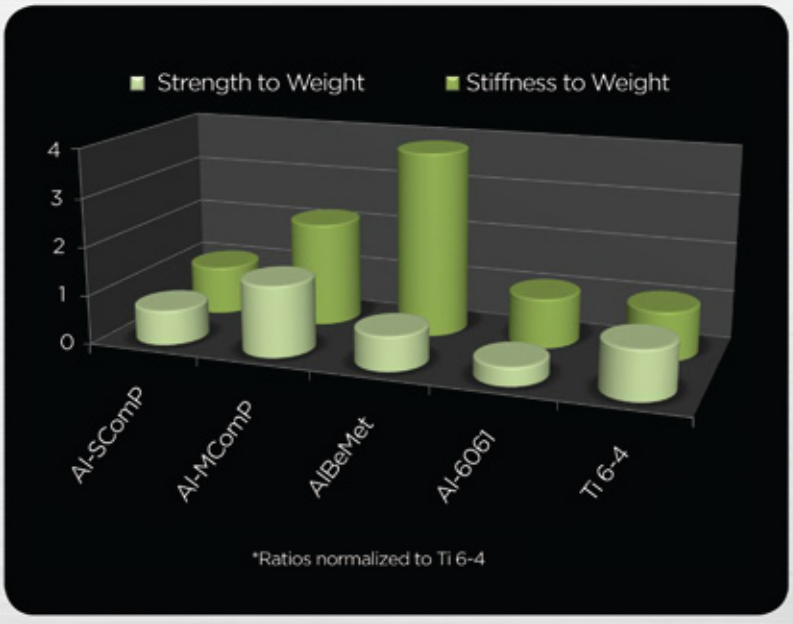
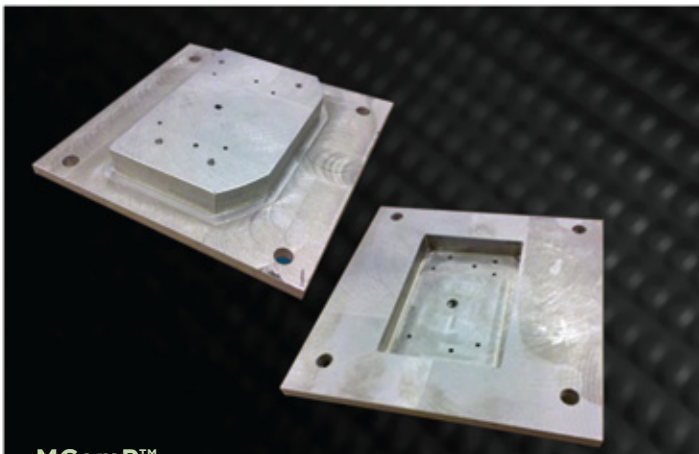
Micro/Nanocomposite Metals

Powdermet offers services for mechanical alloying of micro- and nano-metallic systems including nano-Al, and nano-ceramic additions to metallic alloys. Nano/microstructures are of great interest due to their duplex structure, giving better than rule of mixture properties, enabling very high strength, yet still ductile metallic systems, using Al, Mg, Ti, Fe and other base materials.

AlLiB-MComP™ is a traditional metal matrix composite that is created using powder metallurgical techniques combining aluminum with two other lightweight and high specific stiffness metals: boron and lithium, at the nano-level. The combination of these lightweight (lithium 0.5g/cc) and high modulus (boron E=400GPa) reinforcements allow Powdermet to greatly exceed standard aluminum properties by a nanoengineering process and still retain the weight savings that the lithium gives the alloy.





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These powder metal parts are mechanically alloyed, canned and then consolidated to 80% density. Final consolidation is performed using extrusion, rolling and quasi-isostatic forging to produce the final part at a density of 2.5g/cc. The final parts can be annealed or aged and are available in rod, bar, tube, plate, sheet and some near-net and net shape parts.

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