SKULD

EASIER QUALIFICATION

AMEC is a new hybrid process that combines the best of polymer extrusion printing with lost foam investment casting.

Additive Manufacturing is great because it doesn't require tooling, simplifies supply chains, and permits complex geometries not otherwise possible. Those geometries enable lightweighting, thermal management, and other innovations that are not feasible in conventional machined components.

BUT….

A challenge of additive is that the material properties are often unknown or difficult to predict. Qualification of each additive process and alloy combination can cost millions and take months if not years.

AMEC solves this by providing the same cast material that is currently used. Now it is possible to have net shape, fast, known materials while also allowing additive manufacturing's complex geometries and other benefits. In fact, Metallic Materials Properties Development and Standardization (*MMPDS*) *Handbook* permits qualification through equivalence with 30 tensile tests.

Current R&D For Qualification

- America Makes Project for Inconel 625, 718, and 713c – End goal for thin-walled additive for hypersonics
- Defense Logistics Agency SBIR for aluminum A356 and A535 – End goal rapid, toolingless replacement of legacy castings

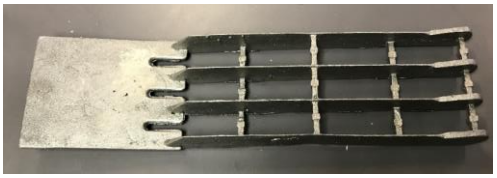
Additional Proof of Concept Alloys

- Grey Iron – All standard US grades
- Ductile Iron – All Standard US grades
- Steels – 1030, 1040, 1060, 8620, Blak OX
- Stainless Steels – 304, 316
- Brass – C84400
- Copper – Commercially Pure

Planned Future Development

- All irons
- Most steels
- Most copper alloys including brass and bronzes
- All Aluminum cast alloys
- Additional nickel cast alloys, e.g. Invar

*Process is likely to work in all cast metals not requiring melting under vacuum.



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