



Electron micrographs of aluminum alloys

Technology Summary

The present invention pertains to an aluminum alloy that is applicable for additive manufacturing. While the alloy is comprised primarily of aluminum, the alloy also contains traces of copper, silver, magnesium, titanium and/or zirconium. These metals aid in providing the alloy with beneficial characteristics for additive manufacturing including: high resistance to solidification and post solidification cracking, ability to produce sound material (minimization of gas porosity and voids within the additive manufacturing build), capacity to develop relatively high strength either in the as-built or post process heat treated conditions, and the capability to produce good surface finish and high feature definition. The powder may be blended to achieve its composition or pre-alloyed to produce a billet, followed by atomization of the billet material to produce powder.

Application & Market Utility

This technology provides for an alloy that possesses a high level of insensitivity to solidification cracking. The alloys can be used in additive manufacturing to produce products including aerospace components that may be used for general aircraft construction, such as brackets, housings, etc., as well as major structural components, such as bulkheads, stiffened plates, etc.

Next Steps

Seeking research collaboration and licensing opportunities.

TECHNOLOGY READINESS LEVEL

4-7

Seeking

Licensing | Research

Keywords

- additive manufacturing
- aluminum alloy

Researchers

Rich Martukanitz

Director of Center for Innovative Materials Processing

[Online Bio](#)

Office of Technology Management Contact

Rokita, Joseph
jjr152@psu.edu
814-863-6336