



AMS7100-AMS7101

PROCESS SPECIFICATION AND MATERIAL FOR FUSED FILAMENT FABRICATION

ABOUT AMS7100-AMS7101

These documents define the generic technical requirements, quality assurance provisions, and documentation needed for fused filament fabrication to produce parts capable of service in aerospace, as well as the technical requirements, testing methodology, and quality assurance provisions needed for Fused Filament Fabrication (FFF) feedstock.

Specifically, AMS7100 standard will cover environmental controls, equipment configuration, software parameters, material controls, calibrations, and testing methodology.

“Following the success and momentum of the SAE AMS-AM Metallic Materials committee, the swift efforts of the AMS-AM-P committee helped bring these groundbreaking, aerospace-grade AMS specifications to the global stakeholder community.”

DAVID ALEXANDER

Director, SAE Aerospace Standards Program

It will define and discuss critical requirements, which have substantial effects on the print quality and final print part properties. No such document currently exists, and such a document is needed to maintain high quality fused filament fabrication produced parts.

AMS7100: Process Specification for Fused Filament Fabrication

AMS7101: Material For Fused Filament Fabrication

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SAE AMS-AM, Additive Manufacturing, is a technical committee in SAE's Aerospace Materials Systems Group with the responsibility to develop and maintain aerospace material and process specifications and other SAE technical reports for additive manufacturing, including precursor material, additive processes, system requirements and post-build materials, pre-processing and postprocessing, non-destructive testing and quality assurance. They are focusing on key AM processes such as Laser and Electron Beam Powder Bed Fusion, but also expanding onto larger build envelope processes such as plasma, laser, and electron beam direct energy deposition. Other relevant AM processes include fused filament fabrication for polymer and binder jetting for both metals and non-metals applications.

Over 350 global participants from more than 15 countries representing aircraft, spacecraft, and engine OEMs, material suppliers, operators, equipment/system suppliers, service providers, regulatory authorities, and defense agencies are active in the committee.

“Both additive manufacturing users and producers will benefit from implementing AMS-AM standards, these standards help define a consistent set of materials and process limits that both the user and producer agree to in support of part procurement activities. AMS-AM standards support the promotion of knowledge, standardization of practice and advancement of commerce in the emerging AM aerospace industry.”

PAUL JONAS, DIRECTOR

Technology Development & Programs at the National Institute for Aviation Research (NIAR) and AMS-AM-P Chair.

Additional Standards from AMS-AM Standards

- AMS7000 Laser-Powder Bed Fusion (L-PBF) Produced Parts, Nickel Alloy, Corrosion and Heat-Resistant, 62Ni - 21.5Cr - 9.0Mo - 3.65Nb Stress Relieved, Hot Isostatic Pressed and Solution Annealed
- AMS7001 Nickel Alloy, Corrosion and Heat-Resistant, Powder for Additive Manufacturing, 62Ni - 21.5Cr - 9.0Mo - 3.65Nb
- AMS7002 Process Requirements for Production of Metal Powder Feedstock for Use in Additive Manufacturing of Aerospace Parts
- AMS7003 Laser Powder Bed Fusion Process
- AMS7004 Titanium Alloy Preforms from Plasma Arc Directed Energy Deposition Additive Manufacturing on Substrate, Ti-6Al-4V, Stress Relieved
- AMS7005 Wire Fed Plasma Arc Directed Energy Deposition Additive Manufacturing Process
- AMS7008 Nickel Alloy, Corrosion and Heat-Resistant, Powder for Additive Manufacturing, 47.5Ni - 22Cr - 1.5Co - 9.0Mo - 0.60W - 18.5Fe
- AMS7013 Nickel Alloy, Corrosion and Heat-Resistant, Powder for Additive Manufacturing, 60Ni - 22Cr - 2.0Mo - 14W - 0.35Al - 0.03La
- AMS7014 Titanium Alloy, High Temperature Applications, Powder for Additive Manufacturing, Ti - 6.0Al - 2.0Sn - 4.0Zr - 2.0Mo

JOIN THE COMMITTEE

Your participation would be a welcome addition to the Additive Manufacturing Committees. The SAE standards consensus process needs active participation from leaders and experts across the industry. If you are a professional in the mobility industry, we welcome your participation.

For more information, contact Jeff Adkins at jeff.adkins@sae.org