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CHARACTERIZATION OF POROSITY VIA MICROCT FOR SELECTIVELY LASER MELTED
TITANIUM-64 AND INCONEL 718**Abstract**

Additively manufactured metals created by the selective laser melting (SLM) process have become prevalent in the aerospace industry within the last several years. Due to the benefits of a freeform fabrication process, reductions in cost and time, as well as improvements in select material characteristics, additively manufactured metals have been developed for rapid prototyping as well as final production hardware. High temperature applications often necessitate complex geometrical structures which SLM is being used for fabrication. Titanium-64 (Ti64) and Inconel 718 (IN718) are two widely used metals in such applications but are often typified by porosity in the as-built state that is detrimental to material performance. Characterization of these metals by μ CT scan at a 0.65 micron resolution and subsequent visualization showed differences in porosity levels depending on build direction and post-processing applied. Porosity was shown to be present down to a 50 micron equivalent diameter. Pores were shaped both spherically and asymmetrically in shape for both Ti64 and IN718, respectively.