

MICROSTRUCTURE AND MECHANICAL PROPERTIES OF HEA ALLOYS FABRICATED BY SELECTIVE LASER MELTING OF POWDER MIXTURES

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An equiatomic CoCrFeMnNi high entropy alloy (HEA) was in-situ alloyed from the mixture of elemental powders using selective laser melting (SLM). A detailed study of the effect of remelting scan strategy on melt pool (hatch) geometry, microstructural and mechanical properties, and elemental distribution of CoCrFeMnNi HEA was undertaken. The X-ray diffraction (XRD) of both as-built and remelted SLM show a single-phase FCC structure typical for a HEA. The both prediction and observation of melt pool depth exhibited a shallower depth in the remelted SLM. The present results confirm the possibility of fabrication of homogenized CoCrFeMnNi HEA from elemental powders using SLM with remelting scan strategy.



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