

Controlled Directional Solidification of Aluminum – 7 wt% Silicon Alloys: Comparison between Samples Processed on Earth and in the Microgravity Environment aboard the International Space Station

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An overview of the international “Microstructure Formation in CASTing of Technical Alloys” (MICAST) program is given. Directional solidification processing of metals and alloys is described, and why experiments conducted in the microgravity environment aboard the International Space Station (ISS) are expected to promote our understanding of this commercially relevant practice. Microstructural differences observed when comparing the aluminum – 7 wt% silicon alloys directionally solidified on Earth to those aboard the ISS are presented and discussed.