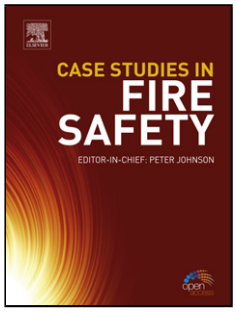

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Building Direction Dependence of Corrosion Resistance Property of Ti-6Al-4V Alloy Fabricated by Electron Beam Melting

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Highlights

- Electrochemical measurements of EBM Ti-6Al-4V alloy were carried out;
- Corrosion resistance in 1 M HCl solution is different along building direction;
- Grain boundary and β phase along building direction account for the difference.

Abstract

Electrochemical measurements in 1 M HCl solution were performed to investigate the corrosion behaviour of Ti-6Al-4V alloy fabricated by electron beam melting (EBM) with cylindrical axes deviating from the building direction by 0°, 45°, 55°, and 90°. Microstructure characterization before and after the tests was carried out by using a variety of methods. The results suggested that the corrosion resistance of EBM alloy in 1 M HCl solution increased slightly in the order of 45°, 90°, 55°, and 0°. Such