In Vitro Bioactivity and Corrosion Properties of Laser Beam Welded Medical Grade AISI 316L Stainless Steel in Simulated Body Fluid

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AISI 316L stainless steel sheet was joined by CO₂ laser beam welding method. In order to determine in vitro bioactivity and corrosion properties of the laser beam welded and non-welded samples were immersed in Simulated Body Fluid (SBF) for 1, 3, 7, 14, 21, 28 days. The bone-like apatite formation was investigated on the surface of the weld area and non-welded samples. Also, corrosion resistance of the laser beam welded and non-welded samples were determined via weight loss method. No corrosion mechanisms were observed in the heat affected zone (HAZ), weld metal of laser beam welded joints, and base material.

Keywords: Biomaterials, Surfaces, Welding, Corrosion test.

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