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标题: Effect of sandblasting and subsequent acid pickling and passivation on the microstructure and corrosion behavior of 316L stainless steel

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摘要: The microstructure, surface morphologies and corrosion behavior of 316L stainless steel processed by sandblasting (SB) and sandblasting + acid pickling + passivation (SBPP) were studied in this work. Microstructure of the surface layer was investigated by optical microscope, scanning electron microscope and X-ray diffraction etc. The corrosion behavior was studied by potentiodynamic polarization tests and the surface morphologies were observed by scanning electron microscope. Results indicated that SB and SBPP samples had almost the same microhardness and dislocation density which were higher than the as-received (AR) sample. Besides, strain-induced alpha'-martensite phase was observed in SB and SBPP samples. After sandblasting, the corrosion resistance decreased dramatically due to the surface morphologies, formation of alpha'-martensite phase and increase of dislocation density, while it was improved to some extent by the subsequent add pickling and passivation. (C) 2015 Elsevier Ltd. All rights reserved.

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