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## Microstructure and mechanical property of vacuum rolled Ni-based alloy/pipeline steel clad plate

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In order to ensure the requirement for H<sub>2</sub>S corrosion resistance pipeline in the oil and gas transportation fields, the Ni-based alloy and pipeline steel were combined successfully by vacuum rolling cladding (VRC) technique. The VRC is a new type of cladding technique based on electron beam welding and hot rolling cladding. Under the condition of high vacuum level, elevated temperature and severe deformation, the excellent metallurgical bonding was performed on the clad interface. In this study, four-layer symmetry rolling of steel-Ni, alloy-Ni and alloy-steel was used and microstructures and shear tension properties of the clad interfaces were investigated. The results indicated that the clad interface was continuous and straight without any porosity and crack, and a thin continuous interface layer with a small amount of Al<sub>2</sub>O<sub>3</sub> particles were distributed on the interface. Besides, obvious inter-diffusions of Fe, Cr and Ni elements were detected about the interface. The average tension shear strength of the clad interface reached 330 MPa, and then fracture was located in the clad interface.

## Biography

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