

Effect of cold rolling on the recrystallization of 904L austenitic stainless steel

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Abstract : The aim of this work is to study the recrystallization in the 904L austenitic stainless steel, which underwent a cold rolling with two different deformation amounts (50 and 90%). DSC tests have been conducted to determine the temperature range of the recrystallization. It was found that reducing the deformation amount slightly delays the recrystallization. The microstructure of the as-received alloy consists of austenitic grains recognized by the twins they contain. The deformation induced a corrugated microstructure with the presence of ribs. The XRD analysis confirmed that only γ phase peaks were present in the as-received alloy and showed that the deformation induced the extinction of γ phase peaks and the apparition of α' phase peaks.

Keywords : recrystallization, 904L, Cold rolling, DSC