

Thermally affected characterization region by Barkhausen noise

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Abstract: The controlling of some industrial components require the development of new and particular nondestructive testing techniques. The testing method using Barkhausen noise (BN) is a particular one which can be applied to ferromagnetic materials. It is a magnetic nondestructive evaluation method and can provide very important information about the material structure. The aim of our work is to study the material structure using this technique to characterize the region submitted to thermal processing. Samples of steel have been heated at temperatures between 650°C and 1200°C with variable parameters (time processing, maintenance time, etc.). Acoustic BN processing allows an easy interpretation of results. Micrographs of samples have been obtained to confirm the results obtained by BN.

Keywords : Non-Destructive testing, Barkhausen noise, Fast Fourier transformer, Magnetic field, welding, microstructure