Magnetic Barkhausen noise and magneto acoustic emission in pressure vessel Steel

Miriam Rocío Neyra Astudillo, María Isabel López Pumarega, Nicolás Marcelo Núñez, Alberto Pochettino, José Ruzzante

Abstract

Magnetic Barkhausen Noise (MBN) and Magneto Acoustic Emission (MAE) were studied in A508 Class II forged steel used for pressure vessels in nuclear power stations. The magnetic experimental determinations were completed with a macro graphic study of sulfides and the texture analysis of the material. The analysis of these results allows us to determine connections between the magnetic anisotropy, texture and microstructure of the material. Results clearly suggest that the plastic flow direction is different from the forging direction indicated by the material supplier

Keywords: Magnetic Barkhausen noise, Magnetic acoustic emission, Steel, Material characterization, Pressure vessels, Texture