Magnetic Barkhausen Noise Characterisation of Isochronally Annealed Miniaturised Fe8Cr Specimens

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Abstract. The magnetic Barkhausen noise technique (MBN) gained its importance in material characterisation, and it is considered as powerful tool for microstructural and indirect mechanical characterisation of ferromagnetic materials. It is well known for its sensitivity to various parameters which affect the magnetic domains configuration and domain-wall pinning sites. In the present paper, we apply the MBN to investigate the microstructural modification of miniaturised specimens of martensitic T91 (Fe8Cr) steel subjected to isochronal annealing. Thin sheets sized 10x10x0.4-0.8 mm were annealed 475 ºC up to 750 h. Results of MBN are discussed with respect to a complementary positron annihilation coincidence Doppler broadening spectroscopy (CDBS) characterisation.