Graphical abstract

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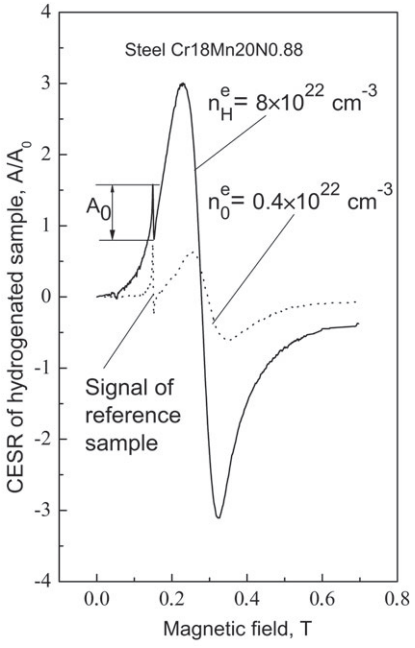
Hydrogen embrittlement of austenitic steels: electron approach

DOI 10.1515/corrrev-2013-0024
Corros Rev 2013; 31(2): 33–50

Review: A mechanism of hydrogen embrittlement of austenitic steels amounts to the hydrogen-increased concentration of free electrons, which locally decreases the shear modulus within the hydrogen clouds around the dislocations and, in turn, decreases their line tension and distance between dislocations in the pileups, thereby leading to early start of microplastic deformation, opening of micrcracks, and pseudo-brittle fracture.

Keywords: austenitic steels; electron structure; hydrogen embrittlements.



Chicgoua Noubactep

Metallic iron for environmental remediation: the long walk to evidence

DOI 10.1515/corrrev-2013-0018
Corros Rev 2013; 31(2): 51–59

Review: The exploitation of the huge potential of using metallic iron for water treatment is delayed by a non-scientific approach.

Keywords: corrosion science; environmental remediation; water treatment; zero-valent iron.

Houria Hamitouche, Abdellah Khelifa, Amel Kouache and Saâd Moulay

Petroleum quaternary ammonium surfactants mixture synthesized from light naphtha as corrosion inhibitors for carbon steel in 1 M HCl

DOI 10.1515/corrrev-2012-0022
Corros Rev 2013; 31(2): 61–72

Original article: Light naphtha quaternary ammonium surfactants as corrosion inhibitors for carbon steel in 1 M HCl.

Keywords: adsorption; carbon steel; cationic surfactants mixture; corrosion inhibition; surfactants synthesis.