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Relating microstructure and corrosion resistance of medium carbon steel

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Abstract

The authors have worked on relating microstructure and corrosion resistance of medium carbon steel. They observed that, in general normalized structure exhibited the lowest susceptibility to corrosion while the martensite structure showed a high usability to corrosion attack. In selecting material for a specific application, factors like machinability cost of the material and corrosion resistance of the material are to be considered. Generally all steel alloys are prone to corrosion and hence steels used for buildings bridges etc are graded in service by corrosion attack. Most engineering steel materials are ductile and their microstructure can be altered by adding alloying elements like Cr, Ni etc through heat treatment to obtain good microstructure leading to a high corrosion resistivity. Their experimental work consisted of choosing test materials, preparation of corrosion coupons and heat treatment of corrosion coupons, and finally heat treating the steel.