Gaseous carburising of self-passivating Fe–Cr–Ni alloys in acetylene-hydrogen mixtures - DTU Orbit (03/08/2019)

Gaseous carburising of self-passivating Fe–Cr–Ni alloys in acetylene–hydrogen was investigated for temperatures up to 823 K. Acetylene–hydrogen gas mixtures allow both the activation of the surface and the subsequent carburising at a high and adjustable carburising potential. For relatively low temperatures, carbon stabilised expanded austenite develops, which has high hardness, while retaining the corrosion performance of the untreated alloy; for relatively high temperatures, Cr based carbides develop, and eventually, the material deteriorates by metal dusting corrosion.

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