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**Effect of aging time on intergranular corrosion behavior of a newly developed
LDX 2404 lean duplex stainless steel**

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Abstract: The effect of aging at 700°C for various times on the intergranular corrosion behavior of LDX 2404 duplex stainless steel is investigated by morphological observation and electrochemical detection. Scanning electronic microscopy and transmission electronic microscopy analysis reveal that Cr₂N, M₂₃C₆ and the sigma and chi phases nucleate simultaneously at the initial stages of aging. The granular particles of sigma phase grow larger but fewer with the increase of aging time. The electrochemical detection results show that intergranular corrosion become more severe and the corrosion type evolves from intergranular corrosion into general corrosion as the holding time extends to 48 h.

Keywords: Duplex Stainless steel; Intergranular corrosion; Precipitates

Introduction

Duplex stainless steels (DSSs) is widely used as a structural material in chemical, petrochemical, marine, nuclear and paper industries because of their attractive

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