

Rail electrification

Port Elizabeth, South Africa

In 1982, the electrification of a railway line on the South-Eastern coast of South Africa involved masts fabricated from utility ferritic stainless steel with a chromium content of about 11 %. Following positive earlier experience in freight handling equipment and structural applications in the mining industry, the designers were guided by a philosophy that aimed at combining

long service life and reasonable cost. The focus was on structural integrity whereas superficial discolouration of the unprotected material would be acceptable.

In some places, the railway line was less than 100 m from the shore. In heavy surf conditions, the masts would occasionally be wet by sea water. Inspection 30 years after installation confirmed the corrosion loss of the subsequent 20 Year Atmospheric Corrosion Exposure Programme which showed that 3CR12 corrodes at about 1 μm in severe marine environments.



Details

Environment:	Coastal/marine
Owner/developer:	Transnet, Johannesburg, South Africa
Fabricator:	AlloyFab
Stainless steel grade:	3CR12
Product type:	Fabricated sections
Dimension:	4.5 and 6 mm
Surface finish:	No. 1/1D
Total quantity:	1,500 t
Producer or supplier:	Columbus Stainless (Pty) Ltd
More information:	sassda.co.za