TECHNICAL NOTE

Corrosion of Nickel Silver in Boiling Sea Water

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Studies on the corrosion behaviour of Nickel silver (copper-nickel-zine alloys) in boiling synthetic sea water and 3.5% sodium chloride solution have been initiated. Scrap Nickel Silver alloy has been melted, cast, and hot rolled into strips for preparation of one set of specimens. Cold rolled strip has been used for preparation of another set of specimens.

Punched samples of 9.25 sq. cms surface area have been exposed in the boiling solutions for extended periods of time, the samples being washed, dried and weighed at definite intervals of exposure. The specimens were cleaned, polished and weighed before use. Specimens from the cold rolled strip (O. 22 mm thick) analysing 68.6% Cu, 12.8% Ni, 18.6% Zn, tested in boiling 3.5% NaCl solutions, with and without oxygenation, showed a weight loss of 6.5 mdd and 0.72 mdd respectively.

Studies on cast and hot rolled specimens are in progress. Cold rolled specimens have also been studied for crevice-type of attack and stress corrosion behaviour in the solution, with and without oxygenation Except for tarnishing of the specimens at the contact between the non-metallic surface and the specimen, no crevice-type of attack has been observed after exposure up, to about 96 hours.

U-bent specimens bent to a radius of 4 mm, held in porcelain connectors have been exposed in boiling 3.5% NaCl, with and without oxygenation, for over 48 hrs. and periodically examined for development of cracks, if any. No cracks have been observed at the conclusion of the experiments.

The ultimate tensile strength of the strip has been calculated to be 43.28 Kg/mm^2 with an elongation of 6.1%. The stress in the outer fibres of the U-bent specimen has been calculated to be 15.4 Kg/mm^2. Experiments on cold rolled specimens in synthetic sea water and of the cast and hot rolled specimens in both the media are in progress.

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