

A Study on Establishment of Designing Method of
Corrosion Resistant Paint System for Sea Water

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Summary

To clarify the effectiveness of paint system, the corrosion and erosion behaviors of resin and zinc-rich paint has been investigated.

The resin used was bisphenol-A type epoxy resin cured with amine. Zinc-rich paint contained 75.5wt.% zinc particle.

The corrosion behaviors were investigated by simple immersion test and the erosion behaviors were by using slurry jet apparatus. Pure water, NaCl, HCl and NaOH solutions were used as corrosion environments.

The damage behavior was evaluated by measurement of weight change, scanning electron microscopic observation of the cross section and damaged surface and so on.

Following results were obtained.

(1)The resin showed better resistance for pure corrosion and erosion (test by water slurry) than zinc-rich paint.

Then, the effectiveness of over-coating of resin on zinc-rich paint was pointed-out.

(2)Zinc-rich paint was corroded severely with dissolution of zinc particle in HCl solution.

(3)If the corrosive action was more severe than erosive one (ex. : damage by HCl jet), zinc-dissolved layer was formed, but the thickness of the paint was not almost changed.

(4)In case of erosion-corrosion condition (ex : HCl slurry), the damage was extremely severe in comparison with the damage by pure corrosion and erosion.

This suggests the mutual action of corrosion and erosion.