Fracture Phenomena of Al-Zn Film Coated on the RA Steel Surface by Thermal Spray

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The RA steel have been used in ship industrial parts. Al-Zn coating have applied to protect against the corrosion attack in sea environments. Especially, the thermal spray method is important to improve the coating film adhesion and corrosion resistance in severely corrosive environments.

In this study, thermal sprayed surfaces on RA steel surface have been investigated using various surface characterizing methods. RA steels were prepared by thermal spray using Zn, Al, and Zn+85%Al wires. Six kinds of specimen were prepared for surface observation using AFM, FE-SEM, EDX, and XRD. In order to check the preferred orientation of coated layer, specimens were cut by cutting machine carefully. For test of surface roughness and adhesion with coated materials and coating conditions, scratch tester and surface roughness tester were used.

For the fracture phenomena of Al-Zn coating film, fracture behaviors of specimens were performed by compression test using tensile tester. After fracture tests, the fractured layers of each specimen were investigated by using FE-SEM.(본 과제는 국토해양부와 한국해양수산기술진흥원으로부터 지원 받아 수행된 연구결과임)