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Investigation on Pitting Corroded Condition and the Simulation of Corrosion Surface Condition

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Summary: Pitting corrosion is a great concern when the integrity of ship's hull structures such as the hold frames in way of cargo holds of bulk carriers which exclusively carry coal and iron ore is considered. The strength of actual pitting corroded member is depending on the pitting corroded surface condition which varies according to the progress of pitting corrosion. In order to investigate the practical strength evaluation method, a serial strength evaluation for various pitting corroded conditions is necessary. However it is difficult to obtain pitting corroded members which meet the purpose of analysis from existing ships. Therefore the strength analysis of simulated pitting corroded members is an alternative procedure. In this case, simulated pitting corrosion surface must well represent an actual pitting corrosion condition. In this paper, the investigation on the pitting corroded surface condition of the hold frames in way of cargo holds of bulk carriers is made to comprehend the statistical nature of pitting corroded surface. Then the simulation procedure is proposed to generate an optional pitting corroded surface. It is confirmed that the simulated pitting corrosion condition is similar to the actual condition.

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