

Use of Acoustic Emission to detect localised corrosion under passive protection, illustrated with real examples

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After several years of research in laboratory, the ability to detect active corrosion by Acoustic Emission technique has been successfully proved. The benefit of using this technology has been recognised by chemical and petrochemical industry to detect stress corrosion cracking and pitting of stainless steel alloy.

The purpose of this paper is to present an extension of this technique to coated low alloy carbon steel. In this case, the mechanism of corrosion is well-known uniform corrosion but the damage appears in restricted area where the passive protection is no more efficient. The goal is to make a diagnosis on the propagation of the localised corrosion or to verify the integrity of the corrosion protective layer on components during in service conditions.

This need arises from unpredicted failures of industrial equipments due to fast propagation of corrosion damage, after the destruction of coating.

This paper presents several situations where CORPAC[®] technology has been applied, not only to detect and locate damage from corrosion, but also to validate repairs and evaluate the efficiency of corrosion protection.

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