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ON THE PROS AND CONS OF SOME ELECTROCHEMICAL TECHNIQUES FOR ANALYZING MICROBIOLOGICAL CORROSION (MIC)

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Microbiologically influenced corrosion (MIC) is electrochemical corrosion in which living organisms (both micro- and macro-) affect the severity and rate of corrosion. Annual loss of industries caused by MIC is billions of dollars. The main difference between MIC and other electrochemical corrosion processes (eg corrosion under insulation-CUI) is the involvement of living organisms.

In analysing MIC, various electrochemical methods are being applied, from simple OCP measurement to polarisation and electrochemical noise analysis. While the use of these methods in electrochemical research is quite frequent, MIC research is an exception. Not all of these methods are applicable to MIC studies, some of them are highly likely to affect corrosion-related bacteria (CRB) adversely so that the results cannot be relied upon.

In this presentation, after a brief review of economical importance of MIC and its most updated definition, we will consider the variety of CRB (contrary to what some researchers may think that MIC is only related to a particular class of CRB such as sulphate reducing bacteria (SRB)) and later list the most applied electrochemical methods for investigation with their pros and cons when applied to MIC research.



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