

Bio-corrosion and its role in deterioration of engineering materials

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Abstract

Bio-corrosion or as more frequently referenced “Microbiologically influenced corrosion”, is electrochemical corrosion in nature. It means that it still needs anode, cathode and an electrolyte to proceed. These features sets it apart from what is generally referred to as bio-deterioration/degradation of non-metallics because the latter does not need anode, cathode or electrolyte rather moisture and a watery environment enriched with nutrients for the microorganisms would suffice to let them proliferate. However, the more the polymer/composite structure is similar to natural polymers (facilitating pick up of nutrients such as but not limited to carbon), susceptibility of non-metallics to bio-degradation would also increase. In addition, if in the making of the polymer/composite materials suitable for bioconsumption are used, this would also increase the probability of failure in these materials.

In this workshop, after introducing corrosion and bio-corrosion principles, bio-deterioration of concrete and polymers will be briefly addressed.

Biography

Reza Javaherdashti has over 20 years of both academic and industry experience in corrosion management, particularly microbiologically influenced corrosion (MIC) in various industries and in several countries around the globe. He has authored/co-authored seven internationally referenced books on corrosion and MIC published by publishers such as Elsevier, Springer, CRC Press and the like. He has over 5000 hours of industry training experience in addition to being involved in numerous root cause analysis practices and projects.



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