On the effect of bio-corrosion of copper electrode in Andrassy bentonite as grounding material

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Abstract:
Good conductive material is crucial for good grounding material. Most of these material are either have good water retention or good conductive ability to ensure good flow of electrical current. On the other hand, the availability of water may induce corrosion to electrode and cause failure in the long run. Many investigations in the field and laboratory have verified that water content, pH, resistivity, redox potential, sulfates and chlorides are the common corrosion parameter of copper in electrical grounding respectively. However, in this study it was noted that the presence of microbial induced corrosion (MIC) in Andrassy bentonite also effect the corrosion rate of copper rod. In this paper, SEM, MICs and weight loss method were collectively used to study the copper rod were exposed to Andrassy bentonite under wet condition. The experimental results show that high water content does not assure high corrosion rates. The research results of this paper can enrich the understanding of the corrosion behavior of copper under Andrassy bentonite.

Keywords: Bentonite; Grounding material; Microbes; Corrosion; Electrode

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