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Short Communication

Measuring of Polarization and Ohmic Potentials for the Diagnostics of Corrosion Protection of the Metal Structures

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The polarization potential (PP) is regarded as the main criterion of corrosion protection of metal structures in conducting media. However, the potential between the reference electrode and the metal of the protected structure is measured with a voltmeter and contains, in addition to the polarization component, the Ohmic drop of the voltage. But, only the polarization of the surface causes the effect of cathodic protection. Therefore, the Ohmic component should be removed from the measured potential difference for the precise control of the protected structure. To solve the problem of measuring PP is known methods of compensating, relaxation, auxiliary electrodes and calculations, which have disadvantages.

We use the method proposed in [1] for determination of the PP with removing of the Ohmic component according to the results of measurements of direct and alternating voltages. We developed special equipment VPP with four measuring channels, microprocessor, GPS and memory [2] for determination the PP, reveal damages to the protective coating according to the results of measuring of the transverse potential gradient, reveal the locations of defects of the insulation, determination the transient and polarization resistances [3].

Acknowledgement

None.

Conflict of Interest

No Conflict of Interest.

References

1. RM Dzhala (2011) A Method for the Determination of the Polarization Potentials of Underground Structures (in Ukrainian), Patent 43130A. Ukraine.
2. RM Dzhala, B Ya Verbenets, MI Melnyk (2015) A Device for Measuring DC and AC Electric Voltages and Polarization Potentials (in Ukrainian).
3. RM Dzhala, B Ya Verbenets, Mel'nyk MI, Mytsyk AB, Savula RS, et al. (2017) New methods for the corrosion monitoring of underground pipelines according to the measurements of currents and potentials. Materials Science 52(5): 732-741.

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