

Corrosion protection through cathodic polarization: A discussion of the relevant effects and comparison with literature

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There is general agreement on the fact that cathodic protection is achieved through polarisation. However, it is often ignored that ISO 8044 specifies that polarization is achieved through activation as well as concentration polarization. Cathodic protection (CP) industry has failed to appreciate these different types of polarization and to consider their implications on measurement techniques. These aspects are discussed and the implications on the assessment of the effectiveness of CP are presented with respect to the various protection criteria in the standards. The failure to distinguish activation- and concentration polarization has also made it impossible to appreciate two apparently opposed concept for corrosion protection: The achievement of corrosion protection through polarization of the cathode to the anode as proposed by Mears and Brown in contrast to the protection through polarization of the anode to the cathode as presented by LaQue. The understanding of the mechanisms associated with cathodic polarization provides insight in the underlying principles of the corrosion protection mechanisms and can contribute to the ongoing discussion on protection criteria.