Mini Review

Corrosion Behavior of Coins in Artificial Sweat Solution: A Review

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Coin materials and time of circulation affect their loss of the original appearance, color, and clear pits of their surfaces. This behavior mainly caused by human sweat that gradually destroys the coins surface. The corrosion behavior of the coins were investigated by many researchers. The wear test might also taking place on the coins before and after immersed in ASS. These coins were investigated in artificial sweat solution (ASS) by chemical and electrochemical techniques. The chemical technique used weight loss (WL) to the minted and sometimes the blanked coins. The electrochemical techniques that used are potentiodynamic polarization (PP) and electrochemical impedance spectroscopy (EIS) techniques to test the coins for different periods of time. The ASS analysis were taken periodically by atomic absorption spectroscopy to support the results of the corrosion methods. Also, it help to have a conceptual understanding of the corrosion process during their immersion in the artificial sweat solution. The ions that released from coins in artificial sweat solution were analyzed. The surface morphology was investigated for the coins before and after immersion in ASS by SEM and EDX. Moreover, the corrosion products on their surfaces after immersion in ASS were analyzed by XRD.

Keywords: Coins; Artificial sweat solution; Corrosion behavior; Electrochemical behavior; Weight-loss method

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