

**Fractal Properties of Electrochemical Noise
Records of Aluminum under Different
Corrosion Type**

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Electrochemical noise records for different types of corrosion processes (generalized corrosion, passivation and pitting corrosion) were determined aluminum steel samples.

Fractal and chaotic tests for determining nonlinearity and non-stationarity were performed over the records in order to find if the chaotic and fractal parameters determined (Hurst exponent, Lyapunov exponent and several fractal dimensions) demonstrate that electrochemical noise records can be considered contained on the field of non linear dynamic time series.

Results show that electrochemical noise records are chaotic series only in some conditions but chaotic and fractal analysis can be a used as a differentiation tool between various types of corrosion processes for the same metal.