

FARADAYIC Process and Life Prediction of Organic Coatings

Objective:

This project demonstrated the feasibility of combining electrochemical techniques and data mining to forecast the breakdown of organic coatings.

Summary:

The breakdown of an organic coating system on Al-2024 T3 panels was achieved through alternate immersion testing, field exposures and Xe-arc weathering. The conditions were designed to simulate the corrosive conditions within an aircraft environment. Coating degradation was monitored using electrochemical and visual techniques, and the data were analyzed using data mining techniques. An algorithm/methodology was developed that uses data mining principles to automatically preprocess data and then uses the filtered data set to accurately predict the state of the coating. Forecasting of coating breakdown was successfully demonstrated over a 2 year period.

Background:

The patented FARADAYIC Process is an electrochemical technology that utilizes a controlled electric field to address industrial problems. Faraday's expertise with electrochemical techniques is applied to solving material degradation problems.

The FARADAYIC Process technology illustrated above is protected by a substantial patent portfolio including issued, allowed, and pending patent actions.

