

Continuous measurement of coatings performance and corrosion protection with Luna CorRES™ Corrosion and Coatings Evaluation Systems

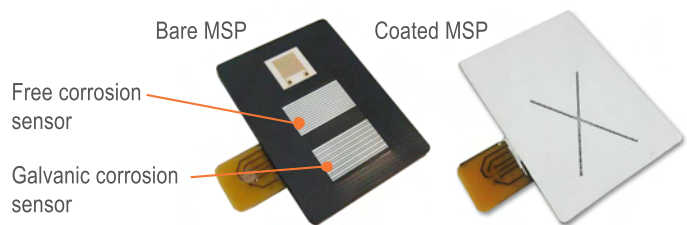
Effective insight to how protective coatings will perform in operational environments is essential for coatings development, product selection, and materials qualification. However, traditional methods of predicting material and coatings performance are inadequate, and too often results from accelerated test methods do not correlate to performance in the service environment. Lack of confidence in test methods and unpredictable performance in service create significant challenges for those introducing new protective coatings.

As a recognized leader in corrosion measurement solutions, Luna developed the CorRES Corrosion and Coatings Evaluation System to provide a more thorough determination of performance through quantitative and continuous records of corrosion performance. CorRES utilizes corrosion and environmental sensors with embedded diagnostics to quantify a coating's capacity to protect substrates. With instantaneous measurement of barrier properties and corrosion mitigation, CorRES brings much needed predictability and confidence to corrosion test methods.

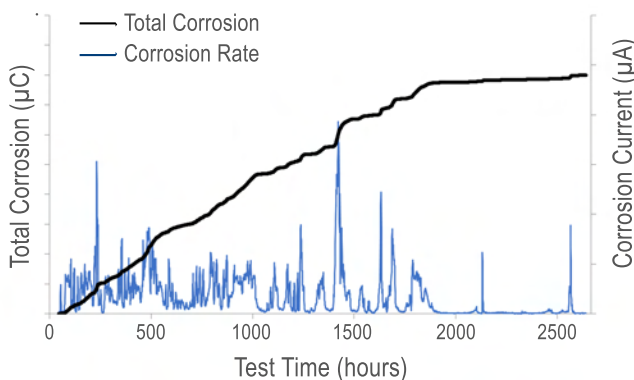
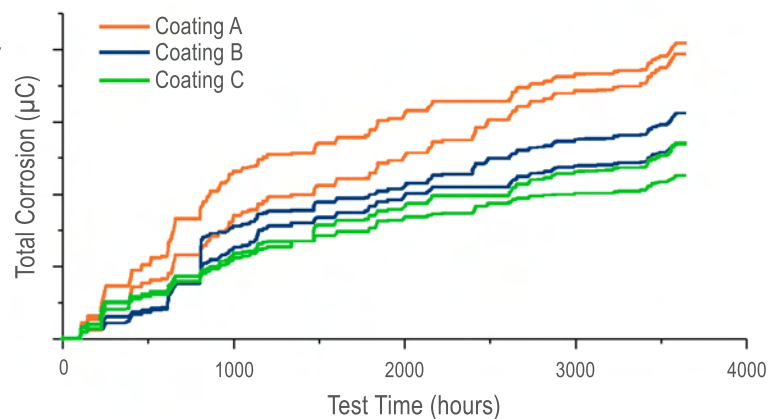
Corrosion Measurements

CorRES continuously monitors corrosion rate over time and therefore can provide a measure of cumulative corrosion (total corrosion) at any point. Free corrosion of a single alloy and galvanic corrosion of dissimilar materials are both continuously measured during testing per ANSI/NACE Standard TM0416-2016.

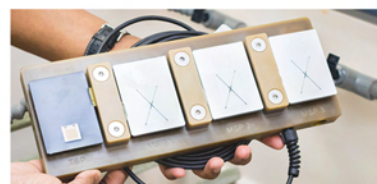
Prior to a test, CorRES sensing elements are coated per traditional panel preparation techniques, and a scribe is made on top of the free corrosion and galvanic corrosion sensors. Corrosion rates of the scribed sensors are then measured continuously throughout testing. A gold conductance sensor remains coated during testing and monitors coating degradation (barrier properties). CorRES Multi-Sensor Panels (MSPs) are consumable panels to be coated, scribed, tested, and possibly stripped of coating for post-test analysis.



Quantitative comparisons between multiple coating systems can be made by comparing the total cumulative free corrosion and/or total galvanic corrosion.



The following Luna systems can be used in accelerated tests, outdoor exposures, and service environments.



- CorRES™ Docking Platform**
- Up to three test panels at once
 - Accelerated test chambers
 - Outdoor exposure sites



- Acuity LS™ Sensor**
- Single test panel
 - On assets in service environments