

# SUBTROPICAL EXPOSURE TESTING FACILITY



Protect your bottom line and make better warranty and development decisions with accurate information about product performance under environmental conditions. At FMRF, we can help you understand the effects of exposure, submergence, and marine fouling on a diverse set of products including paints and coatings, aerospace and marine coatings, outdoor appliances, and electrical and mechanical controls.

## SUBTROPICAL EXPOSURE FACILITY

Our outdoor subtropical exposure facility is rated among the most corrosive environments in the United States, and is the only commercial ocean-front facility for subtropical exposure studies in the U.S. We can accommodate a wide range of samples, including paint, HVAC products, pad-mounted equipment, and vehicles.

## ATMOSPHERIC EXPOSURE

Understand how your product performs under in-use or worst-case exposure conditions. We have a wide array of exposure racks and fences conforming to American Society for Testing and Materials (ASTM) standards. Samples may be exposed at any angle, at either fixed or variable positions.

- 5° south
- 5° east
- 29° south (station latitude)
- 30° east
- 45° south
- 45° east
- 90° south or north
- 90° east (under-eave)
- Black box

## MARINE SUBMERGENCE AND FOULING STUDIES

See how your product interacts with a wide spectrum of fouling organisms, including barnacles, mollusks, calcareous tube worms, bryozoa, hydroids, and algae. Battelle conducts marine submergence and fouling studies in both semidiurnal tidal waters of the Ponce de Leon Inlet and in a sophisticated filtered sea water system adjacent to the natural waters of the inlet.

- Variable depth submergence
- Waterline exposure (floating)
- Inter-tidal exposure
- Splash zone exposure
- Filtered flowing sea water
- Algal resistance
- Hydrodynamic flow system
- Marine mud burial
- Wood boring activity
- Corrosion pools
- Crevice corrosion

## Environmental Monitoring

We continuously measure a variety of environmental factors using state-of-the-art computerized equipment and other instrumentation to give you a more precise understanding of how environmental conditions impact product performance.

- Solar radiation
- Ultraviolet solar radiation
- Hours of wetness
- Ambient temperature
- Relative humidity
- Rainfall
- Wind speed and direction



**CUSTOMIZED RESEARCH PROGRAMS**

Customize a research program to meet your exact needs, or conduct your own study using our state-of-the-art facilities. Our experienced staff can help you select the test conditions most suitable for your product.


**OUR FACILITIES**

Our state-of-the-art facility stretches from the oceanfront to Ponce de Leon Inlet. Our Halifax River site offers a marine immersion dock equipped for fixed, waterline, or splash-zone exposures of paints and materials. In addition, a natural seawater recirculation system feeds three 50'-long concrete tanks, which are used primarily for corrosion pools and dynamic testing of ship hull coatings and materials. We also offer power and data connections to meet your needs.


Our site offers many attractive features and advantages for marine and atmospheric exposure studies:

- Salinity 26–35 ppt, Class III Water
- Test and Seawater Intake Docks
- Boat ramp
- Seawater Recirculation System with 4 50'-tanks and 2 16'-tanks
- Dynamic test apparatus for marine coating—520-kts

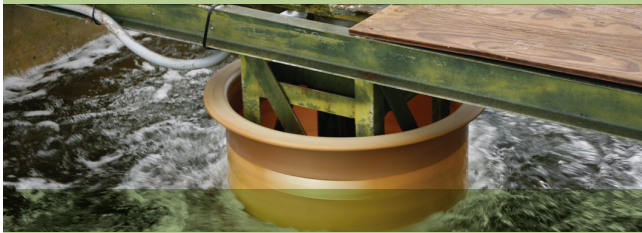
**SPECIALIZED EQUIPMENT**




Outdoor Testing of Automotive Components at Battelle's Marine Atmospheric Site



Marine Immersion Dock for antifouling, fouling release, and splash-zone tests



"Paint Wheel" rotating at 16 knots during dynamic test of hull coatings for ASTM D4939 "Subjecting Marine Antifouling Coating to Biofouling and Fluid Shear Forces in Natural Seawater"



Atmospheric Test Rack and HVAC Equipment

Every day, the people of Battelle apply science and technology to solving what matters most. At major technology centers and national laboratories around the world, Battelle conducts research and development, designs and manufactures products, and delivers critical services for government and commercial customers. Headquartered in Columbus, Ohio, since its founding in 1929, Battelle serves the national security, health and life sciences, and energy and environmental industries. For more information, visit [www.battelle.org](http://www.battelle.org).

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