

Battelle Florida Materials Research Facility



Battelle Florida Materials Atmospheric Testing Site

The Battelle Florida Materials Research Facility is located on the narrow Ponce de Leon Peninsula, situated 10 miles south of the city of Daytona Beach - approximately 29 degrees latitude. The facility is used primarily for evaluation of materials in a subtropical marine environment. Natural weathering studies are conducted at our Atlantic Ocean testing site, while marine immersion, dynamic testing and corrosion studies are conducted at our laboratory located on the estuarine Halifax River adjacent to Ponce de Leon Inlet.

The oceanfront atmospheric testing site can accommodate a wide range of samples, including pad-mounted equipment and vehicles. Power and data connections are available. The Halifax River site has a marine immersion dock equipped for fixed, waterline or floating exposures of paints and materials. A natural seawater recirculation system feeds three 50' long concrete tanks used primarily for corrosion pools and dynamic testing of ship hull coatings and materials.



Atmospheric Test Rack and Equipment



Marine Immersion Dock



"Paint-Wheel" rotating at 16 knots during dynamic test of hull coatings

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Subtropical Oceanfront, Atmospheric Studies. Types of materials undergoing research test vary widely, as do our methods of exposure. The variety of exposure situations used at Battelle Florida is designed by considering your product under one or more of the following sets of conditions:

1. In use
2. Worst-case
3. Correlation study

To facilitate such conditions, a wide array of exposure racks and fences conforming to American Society for Testing and Materials (ASTM) standards are available.

Samples may be exposed at any angle and may face any direction. Experience shows that the more widely-used methods of exposure are the following:

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



Marine Submergence and Fouling Studies. 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. These studies include:

1. Variable depth submergence
2. Waterline exposure (floating)
3. Inter-tidal exposure
4. Above water exposure
5. Filtered flowing sea water
6. Algal resistance
7. Hydrodynamic flow system
8. Marine mud burial
9. Wood boring activity
10. Corrosion pools
11. Crevice corrosion



Biofouling after 3 months at marine immersion dock- May to August 2006

Battelle's multipurpose marine dock is one of the largest of its type available. It provides an environment of clean, natural seawater with a wide spectrum of fouling organisms, including barnacles, mollusks, calcareous tubeworms, bryozoa, hydroids, and algae. Biological activity is high, and fouling attachment to unprotected surfaces occurs throughout the year.

Environmental Monitoring. Using a combination of state-of-the-art computerized equipment and other instrumentation, a variety of environmental factors are measured continuously at Battelle-Florida. These factors include:

- Solar radiation (400nm – 1100nm)
- Ultraviolet solar radiation (295nm – 385nm)
- Hours of wetness
- Ambient temperature
- Relative humidity
- Rainfall

Customized Research. Our Florida Facility prides itself on designing and conducting customized research programs. For example, some of our successful programs include the exposure and evaluation of:

- Antifouling coating systems for buoys
- Automotive coatings
- Bridge and deck structure components
- Architectural components

Program design involves the selection of test conditions most suitable for the product. We have available an experienced staff and specialized skills to organize and conduct your research programs. If you prefer, however, to conduct your own research programs, then our extensive facilities can be made available to you.