DuPont™ Weathering Systems

“Leveraging science to solve your weathering challenge”

DuPont Weathering Systems
South Florida Site
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Hialeah Florida, 33012

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DuPont has run outdoor weathering tests in Hialeah, Florida since 1928, almost 85 years. Hialeah is located in the Miami Area. Samples are exposed under the hot, humid and Sunny climate typically experienced in south Florida. The tip of the Florida peninsula is considered a “benchmark climate” and the ‘Gold Standard’ for outdoor weathering tests.

Exposures can be performed on virtually anything: finished products, materials, or even raw materials - anything that requires high performance in outdoor environments, such as garden products, automotive coatings, as well as interiors, banners, flags, patio furniture, pond liners, pool covers and construction materials. These tests may be used for new product development and qualification, warranty certification, liability protection or competitive benchmarking.
FULL STAFF AND LABORATORY FACILITIES ONSITE

Juan Abreu
Operations & Lead Technician
30 years experience

David Rousseau
Weathering Technician
21 years experience

Lesley Jacques
Site Manager
25 years experience in the field of weathering test development, and research into correlation of accelerated and outdoor test results. Lesley has participated in several test method organizations including ASTM, AATCC, IFAI, SAE, RILEM, ISO and is well published on this subject.

Steven Rothschild
Weathering Technician
5 Years Experience
OUTDOOR WEATHERING EXPOSURE APPLICATIONS
All outdoor exposures meet the requirements of ASTM G7 Standard Practice for Outdoor Exposure of Organic Materials unless otherwise specified

Open Back Exposure:
Samples exposed on adjustable standard aluminum racks. Flexible samples can be backed with expanded metal for support without influencing sample temperature.

Commonly used angles:

<table>
<thead>
<tr>
<th>Application Angle</th>
<th>Textile</th>
<th>26°</th>
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<tbody>
<tr>
<td>Architectural</td>
<td></td>
<td>45°</td>
</tr>
<tr>
<td>Automotive</td>
<td></td>
<td>5°</td>
</tr>
<tr>
<td>Fenestration &amp; Siding</td>
<td></td>
<td>90°</td>
</tr>
<tr>
<td>Custom angles</td>
<td></td>
<td>0° to 90°</td>
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Black Box Exposure:
The sample is mounted on a rack, which is backed by a mat-black painted aluminum box. Sunlight heats the air trapped inside the box, raising the temperature of the samples during the day. The black box can be angled according to customer requirements but is most commonly used at 5 degrees to the horizontal. This test is primarily used for automotive coatings, and other coatings that have to withstand a high-temperature end-use environment. All exposure angles are available as requested.

Backed Exposure:
Samples exposed on adjustable standard aluminum racks with a backing of untreated plywood. The backing produces a higher temperature-testing environment that may be more representative of in-use conditions.
BEHIND GLASS WEATHERING EXPOSURE APPLICATIONS
All under glass outdoor exposures meet the requirements of

Exposure Behind Glass:
Samples on adjustable standard aluminum racks or on a black box are exposed behind a layer of glass. This type of test is used for products with indoor end-use environments such as draperies, upholstery fabric and interior automobile trim.

ASTM G24 specifies single strength window glass. Other standards often require special glasses that are appropriate for simulation of the end-use environment, such as automotive windshield glass. All angles and backings are available.

WHOLE COMPONENT APPLICATIONS
Interaction between materials or effects of the manufacturing process can change the durability of a material. Entire component testing is designed to take these variables into account.
Fluorescent UV Accelerated Testing

Fluorescent UV Accelerated Weathering offers a cost-effective method for comparison of relative durability of materials.

- ASTM D904: Standard Practice for Exposure of Adhesive Specimens to Artificial Light
- ASTM D4329: Standard Practice for Fluorescent UV Exposure of Plastics
- ASTM D4587: Standard Practice for Fluorescent UV-Condensation Exposures of Paint and Related Coatings
- ASTM D4799: Standard Practice for Accelerated Weathering and Procedures for Bituminous Materials (Fluorescent UV, Water Spray, and Condensation Method)
- ASTM D5208: Standard Practice for Fluorescent Ultraviolet (UV) Exposure of Photodegradable Plastics
- ASTM C1422: Standard Practice for Conducting Tests on Sealants Using Artificial Weathering Apparatus
- AATCC TM186: Weather Resistance: UV Light and Moisture Exposure
- GM 9125P: Procedures For Laboratory Accelerated Exposure of Automotive Materials
- ISO 4892-3: Plastics – Method of Exposure to Laboratory Light Sources Part 3: Fluorescent UV Lamps
- ISO 11507: Paints and Varnishes – exposure of Coatings to Artificial Weathering – Exposure to Fluorescent UV Lamps and Water
- JIS-D 0205: Test Method of Weatherability for Automotive Parts
- SAE-J2020: Accelerated Exposure of Automotive Exterior Materials Using a Fluorescent UV and Condensation Apparatus
EVALUATION AND SERVICES

MEASUREMENTS
- 60°, 20° & 85° Gloss, BYK Benchtop reference Glossmeters
- Haze Measurement.
- Distinctness of Image Tricor 807A
- Range of color scales and measurement geometries, BYK Color Guide or, Xrite MA 100 multi angle.
- Visual Inspections and evaluations, blistering, cracking, color, dirt & mildew, corrosion etc:
  - Tape Adhesion
  - Tape Chalk
- Continuous Climatic and sample temperature Monitoring.
- Multiple report formats, graphics, PDF, Excel, Flat Files, Certified hardcopy.
- Digital photography
- Washing, Polishing, Clipping, Masking

EXTENDED CAPABILITIES

Jacksonville Florida Site: Located on the NE coast of Florida at 030°23’ North and 08°34’ West, the Jacksonville Site is a major Atlantic port with extensive shipping traffic and local industry. This area has a history of above-average acid rain content and is used as a benchmark for acid rain and industrial environment testing for automotive finishes.

Consulting: Determination of exposure requirements, experimental design and data analysis.

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** Note: Extended Capabilities are not A2LA Accredited