THE BENEFITS OF ULTRA-ACCELERATED TESTING

What is the Ultra-Accelerated EMMA®?

The Ultra-Accelerated EMMA (UA-EMMA) is Atlas’ latest advancement in natural exposure testing. This new outdoor testing device delivers approximately 10-12 years of equivalent radiation exposure as would be received in a standard outdoor testing rack in South Florida in a single year.

The system achieves this accelerated exposure through a patented “cool mirror” technology that has very high reflectance in the UV and near visible wavelength ranges while attenuating reflectance in the longer wavelength visible and IR portions of the solar spectrum.

What are the Advantages?

The new UA-EMMA system allows for greatly accelerated testing while fulfilling three critical testing requirements:

- Exposes many different types of materials to ultra-high UV irradiance
- Maintains high fidelity to the natural solar UV spectrum
- Keeps specimens at acceptable exposure temperatures

Ideal Materials for UA-EMMA® Testing

- Materials that require a long service life
- Transparent and glazed materials
- Temperature sensitive materials such as PVC
- Coatings applied to metal panels
- Materials that perform well in EMMA or EMMAQUA exposure testing

EMMAQUA® Weathering Standards

The table below lists selected standards for EMMAQUA exposure. For details, refer to the individual standards. Test methods which are proprietary to individual companies and which also specify Fresnel-based exposure methods are not listed here.

<table>
<thead>
<tr>
<th>EMMAQUA STANDARD</th>
<th>SCOPE</th>
<th>COUNTRY</th>
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<tr>
<td>ISO 877-3</td>
<td>Plastics</td>
<td>International</td>
</tr>
<tr>
<td>ASTM D3841</td>
<td>Glass-fiber reinforced polyester</td>
<td>USA</td>
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<tr>
<td>ASTM D4141</td>
<td>Coatings</td>
<td>USA</td>
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<tr>
<td>ASTM D4364</td>
<td>Plastics</td>
<td>USA</td>
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<tr>
<td>ASTM D5722</td>
<td>Coated hardboard</td>
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<tr>
<td>ASTM E1596</td>
<td>PV modules</td>
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<td>ASTM G90</td>
<td>Non-metallic materials</td>
<td>USA</td>
</tr>
<tr>
<td>SAE J576</td>
<td>Optical automotive plastics</td>
<td>USA</td>
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<tr>
<td>SAE J1981</td>
<td>Automotive exterior</td>
<td>USA</td>
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<tr>
<td>SAE-AMS-T-22985</td>
<td>Preservation sealing tape</td>
<td>USA</td>
</tr>
<tr>
<td>JS Z831</td>
<td>General</td>
<td>Japan</td>
</tr>
</tbody>
</table>

Applications

- Adhesives
- Agricultural Films
- Automotive Exteriors
- Building Materials
- Elastomers
- Glass (Architectural & Automotive)
- Packaging
- Paints & Coatings
- Plastics
- Roofing
- Sealants

The first EMMAQUA® device, constructed with a wooden frame and sheet metal skin, is patented, manufactured and placed into service.

Atlas’ DSET Laboratories relocates from Phoenix to New River, Arizona. The EMMAQUA device is redesigned with a steel framework and more efficient spray delivery system.

EMMAQUA®, the next generation of accelerated testing devices, is introduced. Advancements include individual cycle programming, black panel temperature control, and altazimuth solar tracking for more efficient delivery of full-spectrum solar energy.

The MQ3K is launched, utilizing state-of-the-art technology in computer-controlled cycle programming, more accurate altazimuth solar tracking, one-touch start/stop, error sensing feedback and the most-specular mirrors available.

EMMAQUA+®, the next generation of accelerated weathering devices, is introduced. Advancements include individual cycle programming, black panel temperature control, and altazimuth solar tracking for more efficient delivery of full-spectrum solar energy.

Atlas introduces four patented suites of Temperature-Controlled EMMAQUA®: Static, Night, Dynamic Temperature and Variable Irradiance Control. This breakthrough allows for the testing of materials that are sensitive to thermal buildup.

Atlas introduces the UA-EMMA, the latest advancement in outdoor accelerated testing. This device couples the EMMA platform with a new patented mirror system, optimizing real-world correlation.
Global Support, Weathering Exposure Sites & Laboratories

Corporate Offices
Chicago, Illinois USA • Linsengericht, Germany • Shanghai, China • São Paulo, Brazil • Élancourt, France • Mörfelden-Walldorf, Germany • Bangalore, India • Leicester, United Kingdom

Outdoor Exposure Sites & Laboratories
Miami, Florida USA • Phoenix, Arizona USA • Sanary, France • Chicago, Illinois USA • Duisburg, Germany • Leicester, United Kingdom • Hoek van Holland, The Netherlands • Chennai, India • Prescott, Arizona USA • Loveland, Colorado USA • Medina, Ohio USA
Keys, Florida USA • Jacksonville, Florida USA • Alberta, Michigan USA • Hainan, China • Guangzhou, China • Seosan, Korea • Miyakojima, Okinawa, Japan • Choshi, Japan • Kirishima, Japan • Singapore • Melbourne, Australia • Townsville, Australia • Novorossiysk, Russia • Gelendzhik, Russia • Moscow, Russia

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