PRODUCT SUMMARY LU-0805

QUV Accelerated Weathering Tester

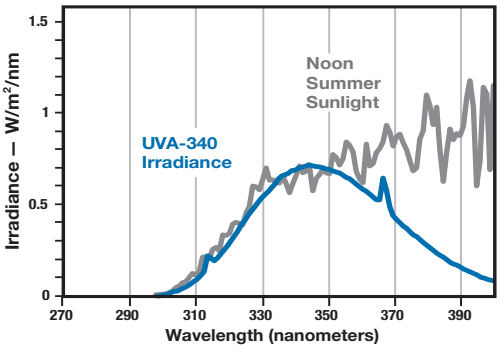
The QUV® tester's short wavelength, ultraviolet light, and moisture cycles realistically simulate the damaging effects of sunlight, dew, and rain. You can generate reproducible and reliable weathering data in just a few weeks or months, with excellent correlation to outdoor weathering tests.

QUV Tester Features

- **SOLAR EYE® Irradiance Control**
- **Condensation System Uses Tap Water**
- **Quick & Easy Calibration with AutoCal**
- **Small Footprint / Large Capacity**

Ultraviolet Sunlight

The QUV machine uses fluorescent UV lamps to reproduce the damaging effects of sunlight. Although UV light makes up only about 5% of sunlight, it is responsible for most of the sunlight damage to polymer materials exposed outdoors. Therefore, it is only necessary to reproduce the short wavelength UV for testing polymer degradation.



UVA-340 is the best available simulation of sunlight from 295 nm (solar cut-on) to 365 nm.

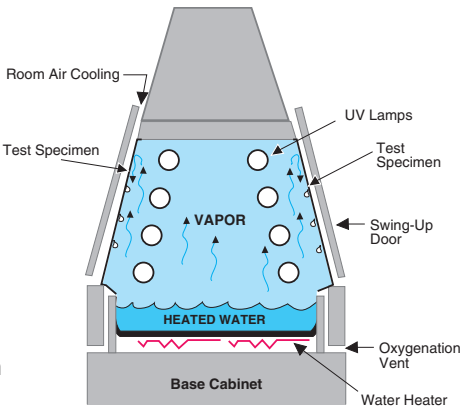
Several types of UV lamps are available for the QUV accelerated weathering tester. Each lamp type differs in the total amount of UV energy emitted and in wavelength spectrum. For example, the UVA-340 lamp offers the best correlation to outdoor exposures because it is the best simulation of sunlight from 295 nm to 365 nm. The UVB-313 lamp offers maximum acceleration by utilizing short-wave UV that is more severe than is normally found on the earth's surface. The exposure application dictates which lamp type should be used. *(Request LU-8160 Choice of Lamps for more information.)*

Moisture

Users can program the QUV tester to produce alternating cycles of wetness and UV exposure, creating conditions identical to natural weathering.

Studies have shown that condensation in the form of dew is responsible for most outdoor wetness. Dew is more damaging than rain because it remains on the material for a long time, allowing significant moisture absorption.

The QUV machine's long, hot condensation cycle reproduces outdoor moisture far better than other methods such as water spray, immersion, or high humidity.



The QUV tester's unique condensation mechanism reproduces outdoor moisture.

To simulate damage caused by rain, such as thermal shock or mechanical erosion, the QUV tester can be fitted with a water spray system in addition to the standard condensation mechanism.

Temperature

Increasing temperature typically accelerates the destructive effects of light and moisture exposures. The QUV accelerated weathering tester provides accurate temperature control, as well as a means to elevate the temperature to produce acceleration.

Q-LAB

Irradiance Control & Calibration

Irradiance control in the QUV machine is simplified by the inherent spectral stability of its fluorescent UV lamps. Unlike most other lamp types, there is no change in the spectra of the QUV tester's fluorescent lamps over time. This enhances the reproducibility of test results and is a major advantage of using a QUV machine for testing.

The patented SOLAR EYE Irradiance Controller continuously monitors the UV intensity of the lamps, using four sensors at the same plane. This feedback allows the SOLAR EYE to automatically compensate for lamp aging, or any other variability, by adjusting power to the lamps. The SOLAR EYE allows better reproducibility and repeatability than manual irradiance control systems used in the old-style QUV testers and in the QUV/basic model. Maintenance time and costs are reduced, because there is no need for manual lamp rotation.

In addition to its other advantages, the SOLAR EYE system allows for easy calibration and traceability for ISO compliance.

Test specimens are mounted in convenient snap-ring holders.

Calibrations with the CR10 Radiometer take only minutes and comply with ISO 9000 and ISO 17025 requirements.

QUV Models

Model QUV/se. Features the SOLAR EYE Irradiance Controller for precise control of UV light intensity. This assures more reproducible test results and allows compliance with ISO calibration requirements. With the SOLAR EYE, you can increase the irradiance to 1.75 times noon, summer sunlight.

Model QUV/spray. This model is a QUV/se unit that is also equipped with direct water spray, for testing thermal shock and mechanical erosion.

Model QUV/basic. The basic model provides UV light and moisture testing, without control of light intensity. The QUV/basic tester is the ideal choice for labs where economy is critical.

Model QUV/cw. This unit is similar to the QUV/se model, but is modified to use fluorescent cool white lamps for reproducing indoor commercial and retail environments.

QUV Meets Test Standards

As the world's most widely used weathering tester, the QUV unit complies with many international standard test methods. Here is a partial list.

General
- ASTM G151
- ASTM G154
- JIS D 0205
- SAE J2020

Coatings
- ASTM D3794
- ASTM D4587
- FED-STD-141B
- GM 9125P
- JIS K 5600-7-8
- ISO 11507
- ISO 20340
- M598-1990
- NACE TM-01-84
- NISSAN M0007
- PrEN 927-6

Adhesives
- ASTM C1184
- ASTM C1442
- ASTM D904
- ASTM D5215
- UNE 104-281-88

Plastics
- ANSI C57.12.28
- ANSI, A14.5
- ASTM D4329
- ASTM D4674
- ASTM D5208
- ASTM D6662
- DIN 53 384
- ISO 4892-3
- JIS K 3750
- UNE 53.104

Roofing
- ANSI/RMA IPR-1-1990
- ASTM D4799
- ASTM D4811
- ASTM D3105
- ASTM D4434
- ASTM D5019
- BS 903: Part A54
- CGSB-37.54-M
- DIN EN 534

Printing Inks/Artists' Materials
- ASTM D3424
- ASTM F1945

Textiles
- AATCC TM 186
- ACFFA Guideline

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