SOLAR® LIGHT

INDOOR TESTING

Fluorescent UV Simulation, Indoor UV, and "Through Window Glass" Simulation Testing

Date:_____

CONTACT INFORMATION

Company Name:_____

Contact Name:_____ Title:_____

Email:_____

Street Address:_____

City:_____ State:_____ Zip:_____

Country: _____ Telephone:_____ Fax:_____

Quotation #: _____

ACCELERATED UV SIMULATION

Interval to Simulate: _____Years_____Weeks

Photography Intervals: Start,_____ Colorimetry Intervals: Start,_____

Report by Engineer/Physicist: ☐ Yes ☐ No Number of Samples Sent:_____

Special handling, release layers, area of exposure and orientation:_____

_____

RETURN INFORMATION

Is the sample to be returned: ☐ Service: ☐ Overnight ☐ 2nd Day ☐ Ground

Shipping Account #: *(If Necessary)*_____

Payment Information:_____ ☐ MasterCard ☐ Visa ☐ Amex ☐ Discover

Credit Card #:_____ Expiration:_____ CVV:_____

(Call this in if you prefer)

PO #: *(Approval Required)*_____

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While we maintain that we can successfully make the correlation that exposing the test articles at an elevated UV irradiance for the equivalent dose representing the 'annual dose' that it corresponds to, it is important to comprehend the following the guidelines of ASTM G151. *(Italicized text is the editor's notes.)*

4.1.3.1 Acceleration rates may depend on the material's formulation. T*he tests we have performed for more than 12 years indicate that over most materials that are chosen for outdoor applications, the acceleration rates don't vary radically for most materials.*

4.1.3.2 Degradation rate variability can be different for each material and for different formulations of the same material. *Generally speaking, the additives, inhibitors and other components, when present, can extend the exposure before significant changes and their presence overwhelms the differences between materials. It is exactly the kind of data that is useful to our customers.*

4.1.3.3 These acceleration rates do not take into account the effects in the field of variable temperature and humidity. *ASTM G151 cites several factors that may decrease the correlation between the laboratory response and the external exposure. We have been diligent to minimize these impacts on the test strategy in these ways, each listed per the specific part of the standard:*

4.1.4.1 The light source can be spectrally different from the sun. *We minimize the difference in spectral distribution between the sun and our simulator by the appropriate processes, measurements and calibration procedures;*

4.1.4.2 Light intensities can be higher than those experienced in actual conditions. *The intensities may be higher that those experienced in actual use conditions, so we will apply the use of a reference material that has been exposed at actual elevated irradiance. Levels and maintain similar property changes to correspond to the intended duration for the test. In addition, we have a large set of statistical studies, covering a vast number of material types, formulations and durations; hence we are confident that our strategy is valid.*

4.1.4.3 Continuous exposures that differ from actual use where alternating periods of light and dark occur. *This effect can be simulated using a timer. We have found in our statistical analysis that the continuous exposure still correlates well to actual use conditions. This has also been cited in the standards literature.*[1]

4.1.4.4 Specimen temperatures may be higher than actual conditions. *Specimen temperatures can be maintained close to the specified temperature in our strategy, due to our simulator's design that encloses the light simulation equipment within a much larger stable environment room.*

4.1.4.5 Exposure conditions may produce unrealistic temperature differences between dark and light colored specimens. *Due to the same design conditions, and the the characteristics of the material under test the temperature differences between light and dark specimens is not significant.*

4.1.4.6 Exposure conditions may produce frequent cycling between high and low temperatures or thermal shock. *Due to our simulator design, the temperatures of the specimen are carefully maintained at the specified temperature; hence, there will be no thermal shock effects.*

4.1.4.7 Unrealistic high or low levels of moisture. *The humidity in our laboratory environment is measured and has been found to be not excessively high or excessively low.*

4.1.4.8 Absent biologic agents or pollutants. *Though these factors are absent, they are truly difficult to simulate or model. We feel that insofar as differentiating the response of materials to UV exposures, our method is valid without simulating this condition.*

[1] ANSI/SAE Z26.1-1996; EOTA TR-010 – 2004; Toyota Engineering standard TSH-1585G