EXPOSURE OF INTERIOR TRIM MATERIALS IN A CONTROLLED IRRADIANCE WATER COOLED XENON-ARC APPARATUS

Application

This procedure is used to determine the effects of simulated weather on interior trim materials using a controlled irradiance water cooled xenon-arc Weather-Ometer® with an auxiliary lantern and filters.

Apparatus Required

Atlas Ci Series Xenon Arc Weather-Ometer®
Models: Ci 35A, Ci 65A, Ci 4000 or Ci 5000

Auxiliary Lamp Filter Lantern
Part Number: 20906800 for models Ci 35A, Ci 65A
Part Number: 20909900 for model Ci 4000
Part Number: 20293100 for model Ci 5000

Available from:
Atlas Material Testing Technology LLC
4114 Ravenswood Ave.
Chicago, IL 60613 USA

Operating Filter
335 nm long pass filters (SF-5 filters) or equivalent provided the transmission spectrum is within 95% of the SF-5 filter transmission at all wavelengths. The filters are reversible unless otherwise marked by a coating or etching.

Dimensions for the Ci 5000 series Weather-Ometer®:
339 mm +/- 0.13 mm x 70 mm +/- 0.13 mm x 3 mm +/- 0.52 mm

Dimensions for the Ci 35A, Ci 65A & Ci 4000 Weather-Ometer®:
220 mm +/- 0.13 mm x 70 mm +/- 0.13 mm x 3 mm +/- 0.52 mm

Available from:
Atlas Material Testing Technology LLC or Schott Glass Technologies, Inc.
4114 Ravenswood Ave. or 400 York Ave.
Chicago, IL 60613 USA or Duryea, PA 18642 USA
Lamp Sensor Irradiance Filter
420 nm Irradiance Filter

Available from:

Atlas Material Testing Technology LLC
4114 Ravenswood Ave.
Chicago, IL 60613 USA

Calibration Lamp
The calibration lamp must be calibrated to 420 nm with the lantern assembly removed.

Available from:

Atlas Material Testing Technology LLC
4114 Ravenswood Ave.
Chicago, IL 60613 USA

Sample & Test Conditions

Sample Conditioning
All test values indicated herein are based on material conditioned in a controlled atmosphere of 21 +/- 2 °C and 50 +/- 5% relative humidity for not less than 24 h prior to testing and tested under the same conditions unless otherwise specified.

Test Conditions
Testing conditions such as black panel temperature, dry bulb temperature, humidity, light cycle times and dark cycle times are equivalent to those outlined in SAE J1885 – Accelerated Exposure of Automotive Interior Trim Components Using a Controlled Irradiance Water Cooled Xenon-Arc Apparatus, Table 3 and Section 5.1.7.

Place the 335 nm long pass filters (SF-5 filters) or equivalent into the auxiliary lantern. Orient the lantern around the xenon-arc lamp assembly which is equipped with the Quartz/Type "S" Borosilicate filtered xenon-arc lamp source as outlined in SAE J1885 – Accelerated Exposure of Automotive Interior Trim Components Using a Controlled Irradiance Water Cooled Xenon-Arc Apparatus, Section 5.1.4.

Exposures are monitored based on measured light at 1.06 W/m²/nm@420 nm and not as indicated in SAE J1885 – Accelerated Exposure of Automotive Interior Trim Components Using a Controlled Irradiance Water Cooled Xenon-Arc Apparatus, Table 3.

Calibration

Equipment Calibration
As per SAE J1885 – Accelerated Exposure of Automotive Interior Trim Components Using a Controlled Irradiance Water Cooled Xenon-Arc Apparatus, Appendix B.
Maintenance

Equipment Maintenance
As per SAE J1885 – Accelerated Exposure of Automotive Interior Trim Components Using a Controlled Irradiance Water Cooled Xenon-Arc Apparatus, Appendix A.

Note: SF-5 auxiliary filters should be cleaned at every lamp calibration period or more frequent if necessary.

SF-5 filters and the 420 nm interference filter should be changed per the manufacturer’s recommendations/or within 13,000 hours of use.

Exposure

Sample Exposure
As per SAE J1885 – Accelerated Exposure of Automotive Interior Trim Components Using a Controlled Irradiance Water Cooled Xenon-Arc Apparatus, Test Procedure – Section 6.

Evaluation & Reporting

Sample Evaluation and Exposure Report
As per SAE J1885 – Accelerated Exposure of Automotive Interior Trim Components Using a Controlled Irradiance Water Cooled Xenon-Arc Apparatus, Evaluating and Reporting the Degree of Fade – Section 7.

AATCC Gray Scale, 10 Step, According to AATCC Evaluation Procedure 1/ISO 105-A02 for Evaluation of Color Change.

Available from

AATCC
P.O. Box 12215
Research Triangle Park, NC 27709
Phone: (919) 549-8141

British Standards Institution
3 York Street
Manchester M2 2AT
United Kingdom

Measure the gloss with a 60° glossmeter (or as specified in the applicable Engineering Standard) according to FLTM Bl 110-01. Record the unexposed and exposed gloss.

Chemicals, materials, parts and equipment referenced in this document must be used and handled properly. Each party is responsible for determining proper use and handling in its facilities.