

ULTRAVIOLET STABILITY OF AUTOMOTIVE SAFETY GLASS

Application

This test method describes a procedure for determining the ultraviolet stability of automotive laminated safety glass utilizing outdoor exposure and accelerated laboratory testing procedures.

Scope

Ultraviolet radiation can cause bleaching or fading of colors; resistance to such fading is an important property of the gradient band. This procedure describes standard methods for both outdoor exposure and accelerated laboratory testing of the stability of the gradient band toward UV.

The testing described below is considered the absolute minimum required.

Apparatus Required

Weatherometer

Atlas CI Series Xenon Arc Weatherometer (or equivalent)

Color Measurement Apparatus

BYK Gardner Color Machine - Model TCS Plus or equivalent

Source: BYK Gardner USA
9104 Guilford Rd.
Columbus, Maryland 21046
Tel: (800) 713-5307
(301) 483-6500
Fax: (800) 394-8215

Conditioning and Test Conditions

All test values indicated herein are based on material conditioned in a controlled atmosphere of 23 +/- 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.

Date	Action	Revisions
2001 03 28	Revised	Editorial – no technical change A. Cockman
1999 01 19		

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Page 1 of 3

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Procedure

Laminate Sample Preparation

1. Prepare eight laminate specimens 150 x 150 mm for outdoor testing in Arizona.
2. Prepare four laminate specimens 50 x 125 mm for accelerated testing.
3. All laminate specimens shall be marked or coded in the upper left hand corner.

Outdoor Arizona Testing (DSET Laboratories)

1. Measure the transmission gradients of all specimens before exposure.
2. Specimen shall be exposed at 5 deg south.
3. Specimen shall be placed on exposure racks so that the markings or codings are in the upper left hand corner of the side facing the sun.
4. Specimen shall be exposed to 6, 12 and 24 months.
5. Two specimens shall be evaluated after each exposure period.

Indoor Accelerated Testing - Weatherometer Apparatus

1. Measure the transmission gradients of all specimen before exposure.
2. Specimen shall be exposed for 500 h.
3. Evaluate after 500 h and return to the Weatherometer for an additional 500 h.
4. Evaluate after a total of 1000 h exposure, or as specified in the relevant Engineering Material Specification.

Evaluation

1. Use the Byk Gardner Color Machine Model TCS Plus, or equivalent for all measurements.
2. For low transmission gradients, such as 100506, find an area of 25 % transmission based on III A, 2 deg observer. Using the vernier, note the location for future measurements.
3. Run a complete spectral scan.
4. For higher transmission gradients, such as 312500, find an area of 35 % T and proceed as above.