SURFACE VEHICLE RECOMMENDED PRACTICE

J2633	MAR2015
Issued 2007-08 Reaffirmed 2015-03 Superseding J2633 AUG2007	

Wheel and Wheel Trim Weathering Testing for Paint Coatings

RATIONALE

J2633 has been reaffirmed to comply with the SAE five-year review policy.

FOREWORD

These weathering test procedures have been agreed to as the preferred methods of evaluating paint systems used for automotive wheels and wheel trim. The intent is to recognize, by the industry, a single common method for each test. These common tests will benefit all by reducing the testing complexity, eliminate the need for specialized test equipment and facilities, utilize improved methods, increase test efficiency, and reduce the overall number of special tests required to approve a paint or paint system.

1. SCOPE

This SAE lab test procedure should be used when performing the following specialized weathering tests for wheels; Florida Exposure, QUV, Xenon and Carbon Weatherometer. In addition to these procedures, some additional post-weathering tests may be specified. Please refer to customer specifications for these requirements.

2. REFERENCES

2.1 Applicable Publications

The following publications form a part of this specification to the extent specified herein. Unless otherwise indicated, the latest version of SAE publications shall apply.

2.1.1 SAE Publication

Available from SAE, 400 Commonwealth Drive, Warrendale, PA 15096-0001, Tel: 877-606-7323 (inside USA and Canada) or 724-776-4970 (outside USA), www.sae.org.

SAE J1960 Accelerated Exposure of Automotive Exterior Materials Using a Controlled Irradiance Water-Cooled Xenon Arc Apparatus

TO PLACE A DOCUMENT ORDER: Tel: 877-606-7323 (inside USA and Canada)
Tel: +1 724-776-4970 (outside USA)
Fax: 724-776-0790
Email: CustomerService@sae.org
SAE WEB ADDRESS: http://www.sae.org

2.1.2 ASTM Publications

Available from ASTM, 100 Barr Harbor Drive, West Conshohocken, PA 19428-2959, Tel: 610-832-9585, www.astm.org.

ASTM D523-89 Standard Test Method for Specular Gloss

ASTM G154-06 Standard Practice for Operating Fluorescent Light Apparatus for UV Exposure of Nonmetallic Materials

2.2 Related Publications

The following publications are provided for information purposes and are not a required part of this document.

2.2.1 SAE Publication

Available from SAE, 400 Commonwealth Drive, Warrendale, PA 15096-0001, Tel: 877-606-7323 (inside USA and Canada) or 724-776-4970 (outside USA), www.sae.org.

SAE J2634 Sample Preparation for Testing by Scribing

2.2.2 ASTM Publications

Available from ASTM, 100 Barr Harbor Drive, West Conshohocken, PA 19428-2959, Tel: 610-832-9585, www.astm.org.

ASTM D660-93(2005) Standard Test Method for Evaluating Degree of Checking of Exterior Paints

ASTM D661-93(2005) Standard Test Method for Evaluating Degree of Cracking of Exterior Paints

ASTM D662-93(2005) Standard Test Method for Evaluating Degree of Erosion of Exterior Paints

ASTM D714-02e1 Standard Test Method for Evaluating Degree of Blistering of Paints

ASTM D722-93(2002) Standard Test Method for Grease Resistance of Paper

ASTM D1729-96(2003) Standard Practice for Visual Appraisal of Colors and Color Differences of Diffusely-Illuminated Opaque Materials

ASTM D2616-96(2003) Standard Test Method for Evaluation of Visual Color Difference With a Gray Scale

ASTM D3274-95(2002) Standard Test Method for Evaluating Degree of Surface Disfigurement of Paint Films by Microbial (Fungal or Algal) Growth or Soil and Dirt Accumulation

ASTM D4214-98 Standard Test Methods for Evaluating the Degree of Chalking of Exterior Paint Films

2.3 ASTM Rating System

TABLE 1 - ASTM RATING SCALE

Quality	Rating	Change
Excellent	10	As received, no change
—	9	Very slight change
Very Good	8	Slight change
Good	6	Moderate change
Fair	4	Pronounced change
Poor	2	Severe change
Very Poor	0	Complete failure

3. DEFINITIONS

3.1 Gloss Change

Loss of gloss from initial (unexposed area) appearance after water washing of tested area.

3.2 Chalking

Degradation of coating causing a dry, powdery condition on the coating's surface.

3.3 Color Change

Change in visual appearance from unexposed (initial) to post-test; measured by instrumentation and visual comments.

3.4 Blistering

Bubbles formed on the coating after weathering tests are performed.

3.5 Adhesion

Loss of intercoat / to substrate adhesion.

3.6 Filiform Corrosion

Typically white, "filament like" tracks evidencing corrosion phenomena under surface films.

3.7 Corrosion Creepback

A measured distance from center of scribe to the point where the loss of adhesion of paint film stops.

3.8 Corrosion, Surface Rust

Surface corrosion randomly evident in the field of the paint system on a panel or wheel/trim section.

4. EQUIPMENT AND TEST MATERIALS

4.1 Carbon Arc Weatherometer

4.2 Xenon Lamp Weatherometer, SAE 1960

4.3 QUV, ASTM G 154

5. TEST PROCEDURES

5.1 Carbon Arc Weatherometer

Temperature of cabinet should be 63 °C, Cycle: 102 minutes light, 18 minutes water spray. An area of each coupon shall be masked to prevent UV exposure to an area of the coupon, otherwise known as "initial". The exposed area of the coupons shall be washed with a cloth and warm water to remove dirt at the end of test. Specular Gloss shall be measured, comparing post-tested areas of the coupon to the initial area in terms of percentage of gloss retention, use ASTM D 523 procedure. Color Change: Visual, see 2.2 for rating scale and Section 3 for definitions