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**SAE J361 MAR85**

**Test Method for  
Determining Visual  
Color Match to  
Master Specimen for  
Fabrics, Vinyls,  
Coated Fiberboards,  
and Other  
Automotive Trim  
Materials**

SAE Standard  
Revised March 1985

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Ø TEST METHOD FOR DETERMINING VISUAL COLOR MATCH TO MASTER SPECIMEN FOR  
FABRICS, VINYLs, COATED FIBERBOARDS, AND OTHER AUTOMOTIVE TRIM MATERIALS

1. SCOPE:

This SAE Standard presents a method of matching the color of a test specimen to that of an approved appearance master specimen.

2. TEST SPECIMEN:

The test specimen shall be approximately letter size 215 x 280 mm or as close as possible<sup>1</sup> and shall be cut from an area of the sample having the same pattern and finish as the appearance master specimen.

3. APPEARANCE MASTER SPECIMEN:

An appearance master specimen or specimens shall be established for use as a control for each color, pattern, and finish of material. The master specimen shall be approximately letter size 215 x 280 mm or as close as possible,<sup>1</sup> and shall be stored in a dark, chemically inert (except for normal oxygen content of air) container, such as a filing cabinet, at a maximum temperature of 24°C. Specimens containing rubber, asphalt, or other materials which are potential stainers, shall be isolated to themselves. It is recommended that whenever possible, a numerical color rating be established for the appearance master specimen by use of suitable color measuring equipment such as a colorimeter. The appearance master specimen shall be replaced if necessary with a new specimen having the same numerical color rating as the original appearance master specimen.

<sup>1</sup>A specimen at least 203 mm long shall be used for welts, straps, and similar parts.

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#### 4. COLOR MATCHING BOOTH:

The enclosed area for color matching shall be free from extraneous light. The background on which the specimens are examined and all portions of the color matching booth shall be finished in a neutral gray tone (Munsell N7/7). The color matching booth shall be provided with an overhead simulated north sky daylight light source capable of providing light at a color temperature of  $7500 \pm 300$  K and an illumination of a minimum of  $1076 \text{ lm/m}^2$  measured at the center of the viewing table. The 1000 W incandescent light bulbs used shall be replaced at or before 750 h (3/4 of their rated life). The booth shall also have an overhead simulated horizon sunlight light source using 300 W flood lamps capable of providing light at a color temperature of  $2300 \pm 100$  K. Each bulb must be replaced immediately after burning out. The critical dimensions and the relative positions of the examining table and the light sources are shown in Fig. 1.<sup>2</sup>

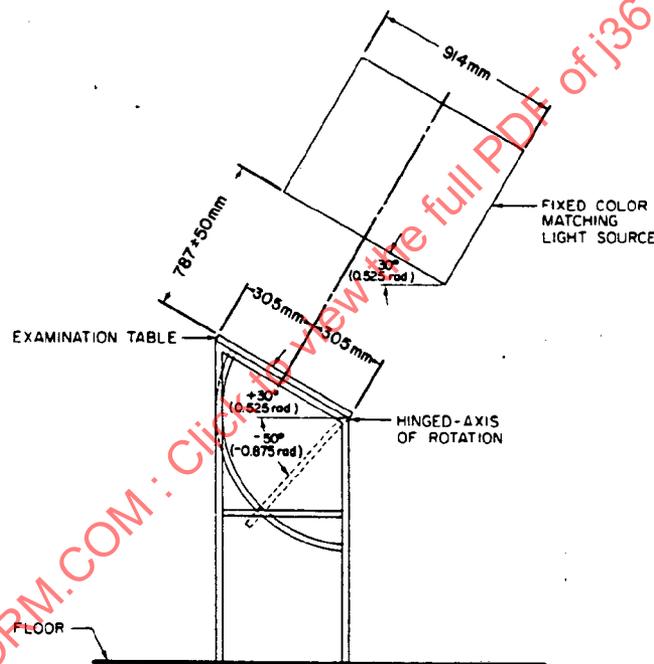


FIGURE 1 - Color Matching Equipment

#### 5. PROCEDURE:

- 5.1 Secure the appearance master specimen and the test specimen side by side to the center of the examining table which is set initially at an angle of  $(0.525 \text{ rad}) + 30 \text{ deg}$  (above the horizontal). The grain or machine direction of each specimen shall be running fore and aft, relative to the examining table.

<sup>2</sup>A light source which meets the requirements of this test can be obtained from: The Macbeth Daylighting Corp., P.O. Box 950, Newburgh, NY 12553.

- 5.2 Compare the specimens under the simulated north sky daylight starting at the  $(0.525 \text{ rad}) + 30 \text{ deg}$  (above the horizontal); and, continue comparing the specimens while rotating them away from the observer through the horizontal, until an angle of  $(-0.875 \text{ rad}) - 50 \text{ deg}$  (below the horizontal) is reached.
- 5.3 Return the specimens to the original angle of  $(0.525 \text{ rad}) + 30 \text{ deg}$  (above the horizontal); and, turn both specimens at right angles to their original position on the examining table (the grain or machine direction will now be running side to side, relative to the examining table).
- 5.4 Repeat step 5.2.
- 5.5 Repeat steps 5.1, 5.2, 5.3, and 5.4 under the simulated horizon sunlight.
- 5.6 All comparisons of highly-textured, three-dimensional materials should be made at a series of angles of view.
- 5.7 The specimens should match under both light sources and all viewing angles to be considered a satisfactory color match.
- 5.8 Specimens which match under one type of light, but not under the other light sources, are called metamers and are not perfect matches. (This type of color match is not usually considered satisfactory unless a deviation is allowable in the material specification.)
- 5.9 Report the color departures of the test specimen from the appearance master specimen in terms of lightness, saturation, and hue. Also define the condition under which each departure occurs, such as: north sky daylight,  $(0.875 \text{ rad}) - 50 \text{ deg}$ , grain or machine direction running side to side. Also report the name or names of the observers.

6. DEFINITIONS:

See Fig. 2.

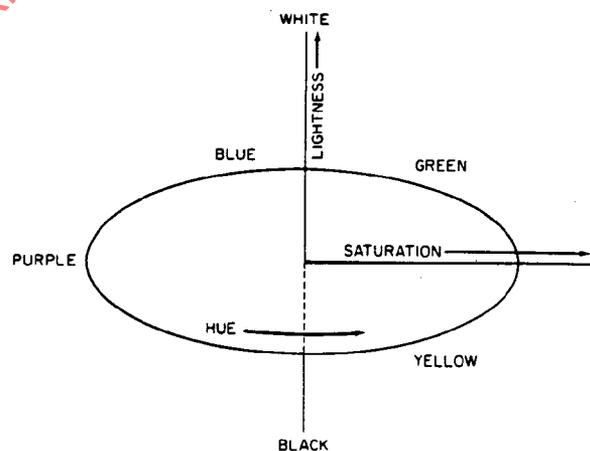


FIGURE 2

- 6.1 Hue: The attribute of color perception by means of which an object is judged to be red, yellow, green, blue, purple, or intermediate between some adjacent pair of these.
- 6.2 Lightness: The attribute of color perception by means of which an object is judged to reflect diffusely more or less light than another object.
- 6.3 Saturation: The attribute of color perception that expresses the degree of departure from gray of the same lightness.

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