

DEPARTMENT OF TRANSPORTATION
DIVISION OF ENGINEERING SERVICES
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METHOD OF TEST FOR EVALUATING COLOR BY MEANS OF CHROMATICITY COORDINATES

CAUTION: Prior to handling test materials, performing equipment setups, and/or conducting this method, testers are required to read "**SAFETY AND HEALTH**" in Section D of this method. It is the responsibility of the user of this method to consult and use departmental safety and health practices and determine the applicability of regulatory limitations before any testing is performed.

A. SCOPE

This test method is used to determine the spectral characteristics of light-reflecting materials. It is also used to designate their color using tristimulus values and chromaticity coordinates determined from testing.

B. APPARATUS

1. The testing device shall conform to requirements described in ASTM Designations: E 1164, E 308, E 313 or E 1347 provided the instrument is capable of satisfying the geometrical and illumination source requirements specified for the material to be tested.
2. Color standards, usually porcelainized tiles or other permanent material, are normally supplied by the instrument manufacturer. They should be directly traceable to master standards at the National Institute for Standards and Technology. Calibrate the instrument according to the manufacturer's instructions.
3. Chromaticity diagrams are required as shown in Chapter VIII of the Massachusetts Institute of Technology Handbook of Colorimetry. Other sources of these chromaticity charts may also be suitable.

C. PROCEDURE

1. Determine the chromaticity coordinates and other colorimetric parameters that may be required in the specifications in accordance with ASTM Designation: E 308. Unless otherwise directed use Commission Internationale de l'Eclairage (CIE) Standard Illuminant C and a 2° Standard Observer.
2. Plot the values of the chromaticity coordinates, x and y, on a chromaticity diagram in accordance with the 1931 CIE Standard Colorimetric System. Plot the coordinates for the color limit specification on the same chart. Determine if the measured color of the sample falls within the specification limits.

3. If required record the daytime luminance factor Y, (%). Record the yellowness index in accordance with ASTM Designation: E 313.

D. SAFETY AND HEALTH

This test method may involve hazardous materials, operations, and equipment. This method does not purport to address all of the safety problems associated with its use. It is the responsibility of whoever uses this method to consult and establish appropriate safety and health practices and determine the applicability of regulatory limitations prior to use.

Prior to handling, testing or disposing of any waste materials, testers are required to read the Caltrans Laboratory Safety Manual. Users of this method do so at their own risk.

REFERENCES:

**ASTM Designations: E 308, E 313, E 1164 and E 1347
1931 CIE Standard Colorimetric System
Massachusetts Institute of Technology- Handbook of Colorimetry, Chapter VIII**

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(California Test 660 contains 2 pages)**