What is the viewing standard?  
ASTM D1729-96


The color and appearance of materials is dependent on the geometry, quantity, and spectral nature of the illumination as well as the surrounding conditions / viewing environment. This standard specifies the conditions for critical visual color appraisal for color matching. The use of spectrally dissimilar illumination sources allows effective detection of a 'conditional' or metameric color match (a good color match under one light source, but a color mismatch under a different light source). An equally important function of the standard is to allow effective communication of color between parties working together on color critical jobs.

Quality of Simulated Daylight

Spectral Power Distribution: Daylight

CIE \( D_65 \) Average North Sky Daylight- The standard specifies this source for color matching applications. Prior to the 1990's, \( D_6 \) was specified as the standard source in the USA. In the graphic arts and photography industries, \( D_6 \) is the standardized source and is referenced in ISO 3664.

Chromaticity

The apparent color of a light source. Each daylight source has an aim-point and circular tolerance specified in CIE color space (UCS 1976) as illustrated at right.

CIE Publication 51 Rating (BC)

Specifies how well a light source simulates daylight. A minimum rating of BC is required for critical color matching applications. The rating is in two parts, where the first letter represents the visible portion of the light source and the second letter represents the ultraviolet portion of the light source. An "A" rating indicates there is less than a 1/4 Delta E difference between the metameric pairs listed in the CIE publication. A "B" rating indicates there is a 1/2 and 1/4 Delta E difference, a "C" rating indicates there is between 1 and 1/2 Delta E difference and so on. An E rating is the lowest. All of GTI's color matching products have a minimum rating of BC.

Color Temperature

Color temperature - 6500K (D65). Correlated color temperature is the correlation between the color emitted by a black body radiator when heated to a specific temperature. It is measured in the Kelvin temperature scale. Other common color temperatures are 7500K, 5000K and 2856K (Illuminant A).

Additional Light Sources (Metamerism)

Various sources are described in the standard. These include Artificial Daylight - specifically D65, Incandescent - specifically Illuminant A and a source at 2300K and Cool White Fluorescent - a.k.a. CWF. Other light sources may be used as required. These include various commercial fluorescent lamps including Ulvulume 30 (30U), TL84 and TL63 to name a few. GTI Graphic Technology, Inc. offers each of the standard sources as well as commercially available fluorescent sources. A combination of these sources, specifically D65, CWF (or TL84), and Illuminant A, are ideal for the detection of metamerism. Ultraviolet (UV) can be included to detect the presence of optical brighteners or whiteners.

Light Intensity

Consistent light intensity is critical to consistent color evaluation. The standard provides a target intensity range designed to allow full tonal visibility of dark samples without over illuminating light samples.

Light Evenness

Within 20% of nominal.

Surround

Simultaneous color and brightness contrast

Geometry

Light source, image, and observer's eyes positioned such that specular reflectance (glare) is minimized but sufficiently directional so that physical appearance aspects of the sample can be detected.

A system of elements designed to increase your bottom line.

Have more questions? Ask GTI, it's our favorite subject.

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