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Colour terminology for office colour equipment

Terminologie couleur pour équipement couleur de bureau

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Foreword

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The committee responsible for this document is ISO/IEC JTC 1, *Information technology*, Subcommittee SC 28, *Office equipment*.

Introduction

Technical colour terms have been published in various fields of standards such as colour photography, graphic technology printing and computer graphics. However, no standard colour terms have been published for office equipment.

As a result, misunderstandings between users and colour office equipment providers can occur when terms are interpreted differently.

The purpose of this International Standard is to provide terminology for use by office equipment providers to help customers use their colour equipment effectively.

Colour terminology for office colour equipment

1 Scope

This International Standard provides definitions for colour terms used with office equipment, in particular for use with colour scanning and printing devices that have digital imaging capabilities, including multi-function devices.

This International Standard is not intended to replace terms and definitions published in documents or user interfaces issued or created by manufacturers.

2 Terms and definitions

For the purposes of this document, the following terms and definitions apply.

2.1
colour balance
adjustment of colour channel gains or processing

2.1.1
grey balance
set of tone values for cyan, magenta and yellow that are expected to appear as an achromatic grey under specified viewing conditions when printed using the specified printing conditions

Note 1 to entry: The user can choose between the following two practical definitions and one theoretical definition of grey, depending upon the particular context.

a) practical definitions:

   1) a colour having the same CIELAB a* and b* values as the print substrate;

   2) a colour that has the same CIELAB a* and b* values as a half-tone tint of similar L* value printed with black ink;

b) theoretical definition:

   1) the colourimetric definition of grey is when the CIELAB a* and b* values are both equal to 0.

[SOURCE: ISO/TS 10128:2009, 3.3, modified]

2.2 black

2.2.1
composite black
printing black with multiple colourants

2.2.2
pure black
black generated only in black colourant in a printing device

2.2.3
rich black
black generated by a mixture of black colourant and other colourants in a printing device

2.3
calibration
set of operations that establish, under specified conditions, the relationship between values of quantities indicated by a measuring instrument or measuring system, or values represented by a material measure or a reference material, and the corresponding values realized by standards

[SOURCE: ISO 14807:2001, 3.11]

2.4
colour appearance
aspect of visual perception by which things are recognized by their colour

[SOURCE: CIE S17/E:2011 ILV, 17-199, modified — "2." part has been removed.]

2.4.1
brightness
attribute of a visual perception according to which an area appears to emit, or reflect, more or less light

[SOURCE: CIE S17/E:2011 ILV, 17-111]

2.4.2
colourfulness
attribute of a visual sensation according to which the perceived colour of an area appears to be more or less chromatic

[SOURCE: ISO/IEC 8613-2:1995]

2.4.3
highlight colour
especially light and low chroma colour

2.4.4
metamerism
phenomenon characterized by the difference in colour observed when two specimens visually matching under a given light source are viewed under another light source with different spectral characteristics

[SOURCE: ISO 4618:2014, 2.157]

2.4.5
vividness
attribute of colour used to indicate the degree of departure of the colour from a neutral black colour

2.5
colour difference
perceived dissimilarity between two colour elements

[SOURCE: CIE S17/E:2011 ILV, 17-206]

2.6 colour encoding

2.6.1
colour palette
fixed set or range of available colours that can be selected

[SOURCE: ISO/TS 16071:2003, 3.8]

2.6.2
full colour
method of representing colours with 3-channel or more, and each channel has 8-bit or more information

Note 1 to entry: Each channel may have 12,16-bit. In "Commercial printing", there are multi-channel colour reproduction such as "CMYKOG".

2.6.3
indexed colour
palette colour
colour selection scheme in which the colour index is used to retrieve colour values from a colour table

[SOURCE: ISO/IEC 8632-1:1999, 4.1.62]

2.6.4
named colour
colour with associated colour expression specification

2.6.5
spot colour
single colourant, identified by name, whose printing tone-values are specified independently from the colour values specified in a colour coordinate system

[SOURCE: ISO 12639:2004, 4.1.10]

2.7
colour management
communication of the associated data required for unambiguous interpretation of colour content data, and application of colour data conversions, as required, to produce the intended reproductions

[SOURCE: ISO 15076-1:2010, 3.1.11]

2.7.1
characterization
process of relating device-dependent colour values to device-independent colour values

[SOURCE: ISO 12637-2:2008, 2.7]

2.7.2
colour gamut
volume, area, or solid in a colour space, consisting of all those colours that are either

a) present in a specific scene, artwork, photograph, photomechanical, or other reproduction, or

b) capable of being created using a particular output device and/or medium

Note 1 to entry: In reproduction and media applications, only the volume or solid in colour space is regarded as colour gamut. In applications such as signal lighting, the colour gamut is an area.

[SOURCE: CIE S17/E:2011 ILV, 17-211]

2.7.3
gamut mapping
mapping of the colour space coordinates of the elements of a source image to colour space coordinates of the elements of a reproduction to compensate for differences in the source and output medium colour gamut capability

Note 1 to entry: The term “gamut mapping” is somewhat more restrictive than the term “colour rendering” because gamut mapping is performed on colourimetry that has already been adjusted to compensate for viewing condition differences and viewer preferences, although these processing operations are frequently combined in reproduction and preferred reproduction models.

[SOURCE: ISO 22028-1:2004, 3.22]

2.7.4
International Color Consortium
ICC
industry association formed to develop standardized mechanisms for colour management

[SOURCE: ISO 15930-3:2002, 3.9]

2.7.5
ICC profile
International Color Consortium's file format, used to store transforms from one colour encoding to another

[SOURCE: ISO 22028-1:2004, 3.24, modified — e.g. part has been removed.]

2.7.6
rendering intent
style of mapping colour values from one image description to another

[SOURCE: ISO 15076-1:2010, 3.1.27]

2.8
colour space
geometric representation of colours in space, usually of three dimensions

[SOURCE: ISO 22028-1:2004, 3.13]

2.8.1
colour space encoding
digital encoding of a colour space, including the specification of a digital encoding method, and a colour space value range

Note 1 to entry: Multiple colour space encodings may be defined based on a single colour space where the different colour space encodings have different digital encoding methods and/or colour space value ranges. (For example, 8-bit sRGB and 10-bit e-sRGB are different colour space encodings based on a particular additive RGB colour space.)

[SOURCE: ISO 22028-1:2004, 3.14]

2.8.2
device-dependent colour space
colour space defined by the characteristics of a real or idealized imaging device

Note 1 to entry: Device-dependent colour spaces having a simple functional relationship to CIE colourimetry can also be categorized as colourimetric colour spaces. For example, additive RGB colour spaces corresponding to real or idealized CRT displays can be treated as colourimetric colour spaces.

[SOURCE: ISO 22028-1:2004, 3.17]

2.8.3
device-independent colour space
colour coordinate system defined in terms of the amounts of visual stimuli colour capabilities independent of the specific device characteristics

[SOURCE: ISO 12637-2:2008, 2.47]

2.9
daylight illuminant
illuminant having the same or nearly the same relative spectral power distribution as a phase of daylight

[SOURCE: IEC 60050, 845-03-11]

2.10
dynamic range
difference between peak white and the black level

[SOURCE: ISO 22493:2014, 4.7.2]

2.11 environment

2.11.1
adapted white
colour stimulus that an observer who is adapted to the viewing environment would judge to be perfectly achromatic and to have a luminance factor of unity; i.e. absolute colorimetric coordinates that an observer would consider to be a perfect white diffuser

Note 1 to entry: The adapted white may vary within a scene.

[SOURCE: ISO 22028-1:2004, 3.2]

2.11.2
glare
discomfort or impairment of vision experienced when parts of the visual field are excessively bright in relation to the brightness of the general surroundings to which the eyes are adapted

[SOURCE: ISO 11064-6:2005, 3.7]

2.11.3
surface colour
colour perceived as belonging to a surface from which the light appears to be diffusely reflected or radiated

[SOURCE: IEC 60050, 845-02-20]

2.11.4
surround
area adjacent to the border of an image, which, upon viewing the image, may affect the local state of adaptation of the eye

[SOURCE: ISO 12646:2008, 3.1.15]

2.11.5
viewing conditions
description of the surrounding environmental conditions during the process of viewing

[SOURCE: ISO/TS 18173:2005, 2.28]

2.12 grey

2.12.1
composite grey
printing grey with multiple colourants

2.12.2
greyscale
image representation in which each pixel is defined by a single sample of colour information, representing overall luminance (on a scale from black to white), and optionally an alpha sample (in which case it is called greyscale with alpha)

[SOURCE: ISO/IEC 15948:2004, 3.1.21]

2.12.3
pure grey
grey generated only in black colourant in a printing device

2.13
luminance ratio
ratio of the maximum luminance to the minimum luminance that is either: present in a specific scene, artwork, photograph, photomechanical, or other reproduction; or is capable of being created using a particular output device and medium

[SOURCE: ISO 22028-1:2004, 3.28]