

JIS

JAPANESE INDUSTRIAL STANDARD

Glossary of Colour Terms

JIS Z 8105—1982

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J I S

Glossary of Colour Terms

Z 8105-1982

1. Scope

This Japanese Industrial Standard specifies the main terms concerning colours, hereinafter referred to as the "terms", and their readings and meanings. However, the names of colours are in accordance with JIS Z 8102.

2. Classification

In this standard, terms shall be classified as follows:

- (1) Terms mainly concerning photometry
- (2) Terms mainly concerning colorimetry
- (3) Terms mainly concerning vision
- (4) Other terms

3. Terms and Meanings

The terms and meanings shall be as follows:

- Remarks 1. In the case where two or more terms are arranged, it shall be used in accordance with the order preferably. The part of terms shown in parentheses may be omitted.
2. Concerning colour in English and color in American, they are abbreviated as colo(u)r. Other than this, the part shown in parentheses may be omitted.

Applicable Standards:

JIS Z 8102-Colour Name

JIS Z 8113-Glossary of Lighting Terms

JIS Z 8721-Specification of Colour According to their Three Attributes

Reference Standard:

JIS Z 8120-Glossary of Optical Terms

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(1) Terms Mainly Concerning Photometry

No.	Reading Term (Japanese character)	Definition	Equivalent in foreign language (reference)
1001	HIKARI 光	(1) Brightness, perception and sensation of colours generated in vision. (2) Radiation capable of causing visual sensation by entering eyes. It is also called "Visible Radiation". (3) Radiation included in wavelength range from ultraviolet radiation up to infrared radiation. Remarks 1. The light in (1) is generated usually by action of light stimulus relative to the vision system. 2. The wavelength range of radiation of (2) is different according to conditions. Practically, it may be considered that its short wavelength end is at 360 to 400 nm and its long wavelength end is at 760 to 830 nm.	(E) light (G) Licht (n) (F) lumière (f)
1002	BUNKŌ MITSUDO 分光密度	The rate of radiation quantity (radiant flux, irradiance, radiance, etc.) contained in the micro wavelength width having centre of wavelength λ per unit wavelength width $\Delta\lambda$ ($=\frac{dX}{d\lambda}$) Remark: The specific radiation quantity, for example, spectral concentration of Radiant flux ϕ_e is abbreviated to "Spectral Radiant Flux Distribution" and expressed by quantity symbol $\phi_{e\lambda}$ ($=\frac{d\phi_e}{d\lambda}$) For the unit, $W \cdot m^{-2}$ or $W \cdot nm^{-1}$ shall be used.	(E) spectral concentration (G) spektrale Dichte (f) (F) densité spectrale (f)

No.	Reading Term (Japanese character)	Definition	Equivalent in foreign language (reference)
1003	BUNKŌ BUNPU 分光分布	The spectral concentration expressed as the function of wavelength λ Remarks 1. It is also called as "Spectral Composition". 2. In order to make the property of radiation quantity clear, for example, the spectral distribution of radiant flux ϕ_e is called as "Spectral Radiant Flux Distribution", and expressed by quantity symbol $\phi_e(\lambda)$. Herein, suffix λ indicates the microcoefficient concerning the wavelength, and (λ) indicates the function of wavelength.	(E) spectral distribution (G) spektrale Verteilung (f) (F) répartition spectrale (f)
1004	SŌTAI BUNKŌ BUMPU 相对分光分布	The relative value of spectral distribution, and is expressed by quantity symbol $S(\lambda)$ or $P(\lambda)$. Remark: In the case where there is no fear of confusion (for example, in the case where the relative spectral power distribution of illumination light relating to measurement and specification of non-luminous object is considered, etc.), the letters of relative is omitted and simply called as "Spectral Distribution" usually.	(E) relative spectral power distribution (G) Strahlungsfunktion (f) (F) répartition spectrale relative d'énergie (f)

Note: In the column "Equivalent in foreign language" (reference), (E), (A), (G) and (F) mean English, American, German and French, respectively.

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No.	Reading Term (Japanese character)	Definition	Equivalent in foreign language (reference)
1005	HISHIKANDO 比視感度	The ratio of radiance L_m of wavelength λ_m at specific measuring conditions relative to radiance L_λ of wavelength λ which gives sensation of brightness equal thereto $\frac{L_{\lambda m}}{L_\lambda}$. The wavelength λ_m shall be so selected that the maximum value of this ratio becomes 1.	(E) spectral luminous efficiency for an individual observer (G) spektraler Hellempfindlichkeitsgrad für den individuellen Beobachter (m) (F) efficacité lumineuse relative spectrale pour un observateur individuel (f)
1006	HYŌJUN HISHIKANDO 標準比視感度	The value employed by the International Commission on Illumination (CIE) and the International Committee of Weights and Measures (CIPM) as the average spectral luminous efficiency for an individual observer in photopic vision, and shall be expressed by quantity symbol $v(\lambda)$.	(E) spectral luminous efficiency (G) spektraler Hellempfindlichkeitsgrad (m) (F) efficacité lumineuse relative spectrale (f)

No.	Reading Term (Japanese character)	Definition	Equivalent in foreign language (reference)
1007 照度	KIDO	The luminous quantity L_v defined according to the following formula concerning the given direction at a point on the light passage, for example at a point on light emitting surface or light receiving surface: $L_v = \frac{d^2\phi_v}{d\Omega \cdot dA \cdot \cos \theta}$ where $d^2\phi_v$: out of luminous fluxes passing through micro-surface element S including the given point on the light passage, the luminous fluxes limited in the micro-solid angle element containing given direction dA: area of micro-surface element S $d\Omega$: solid angle of micro-solid angle element θ: angle included by normal of micro-surface element S and the given direction It is expressed by quantity symbol L_v and in the case where there is no fear of confusion may be expressed by L. For the unit $\text{cd} \cdot \text{m}^{-2}$ shall be used. Remarks 1. In the case of light emitting surface, the definition formula shall be as follows: $L_v = \frac{dI_v}{dA \cdot \cos \theta}$ where dI_v: luminous intensity in given direction of micro-surface element S containing given point of light emitting surface. 2. In the case of light receiving surface, the definition formula shall be as follows: $L_v = \frac{dE_v}{d\Omega}$ where dE_v: illuminance of light receiving surface at a given point by incident light from the micro-solid angle element containing the given direction.	(E) luminance (G) Leuchtdichte (f) (F) luminance lumineuse (f)

No.	Reading Term (Japanese character)	Definition	Equivalent in foreign language (reference)
1008	SHIKAN HANSHA-RITSU 視感反射率	The ratio $\frac{\phi_r}{\phi_i}$ of luminous flux ϕ_r reflecting from object to luminous flux ϕ_i incident in object. It shall be expressed by quantity symbol ρ_v and in the case where there is no fear of confusion, it may be expressed by ρ .	(E) luminous reflectance (G) Reflexionsgrad (m) (F) facteur de réflexion lumineuse (m)
1009	SHIKAN TÔKARITSU 視感透過率	The ratio $\frac{\phi_t}{\phi_i}$ of luminous flux ϕ_t transmitting through object to the luminous flux ϕ_i incident in the object. It shall be expressed by quantity symbol τ_v and in the case where there is no fear of confusion, it may be expressed by τ .	(E) luminous transmittance (G) Transmissionsgrad (m) (F) facteur de transmission lumineuse (m)
1010	KIDORITSU RUMINANSUHWAKUTĀ 輝度率, ルミナンスファクター	The ratio $\frac{L_{es}}{L_{em}}$ of Luminance L_{es} of object illuminated and observed under the same conditions to the luminance L_{em} of perfect reflecting diffuser or perfect transmitting diffuser. It shall be expressed by quantity symbol β_v and in the case where there is no fear of confusion, it may be expressed by β .	(E) luminance factor (G) Leuchtdichtefaktor (m) (F) facteur de luminance lumineuse (m)
1011	HÔSHA KIDORITSU RAJIANSUHWAKUTĀ 放射輝度率, ラジアンスファクター	The ratio $\frac{L_{es}}{L_{en}}$ of radiance (refer to 3004 of JIS Z 8113) L_{es} of object illuminated and observed under the same conditions to radiance L_{en} of perfect reflecting diffuser or perfect transmitting diffuser. It shall be expressed by quantity symbol β_e and in the case where there is no fear of confusion, it may be expressed by β .	(E) radiance factor (G) Strahldichtefaktor (m) (F) facteur de luminance énergétique (m)

No.	Reading Term (Japanese character)	Definition	Equivalent in foreign language (reference)
1012	RITTAI KAKU HANSHARITSU 立体角反射率	The ratio $\frac{\phi_s}{\phi_n}$ of radiant flux (luminous flux) ϕ_s reflecting from object in the same limited solid angle with illuminating under the same conditions to radiant flux (luminous flux) ϕ_n reflecting from full diffuse reflection surface. It shall be expressed by quantity symbol R_s or R_v and in the case where there is no fear of confusion, it may be expressed by R. Remark: When reflection solid angle approaches 2π sr, the solid angle reflectance approaches reflectance (where luminous flux is used, the luminous reflectance) and when the reflection solid angle approaches 0, the solid angle reflectance approaches luminance factor or radiance factor.	(E) reflectance factor (G) Reflexionsfaktor (m)
1013	BUNKŌ HANSHARITSU, SUPEKUTORU HANSHARITSU 分光反射率, スペクトル反射率	The ratio $\frac{\phi_{\lambda}}{\phi_n}$ of spectral radiant flux ϕ_{λ} of wavelength λ reflecting from object to the spectral radiant flux ϕ_n of wavelength λ incident in object. It shall be expressed by quantity symbol $\rho(\lambda)$.	(E) spectral reflectance (G) spektraler Reflexionsgrad (m) (F) facteur réflexion spectrale (m)
1014	BUNKŌ HŌSHA KIDORITSU SUPEKUTORARU- RAJIANSUHWAKUTĀ 分光放射輝度率, スペクトルラジアンスファクター	The ratio $\frac{L_{\text{obj}}}{L_{\text{enl}}}$ of spectral radiance L_{obj} at wavelength λ of object illuminated and observed under the same conditions to the spectral irradiance L_{enl} at wavelength λ of perfect reflecting diffuser or perfect transmitting diffuser. It shall be expressed by quantity symbol $\beta(\lambda)$.	(E) spectral radiance factor (G) spektraler Strahldichtefaktor (m) (F) facteur de luminance spectrale (m)

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No.	Reading Term (Japanese character)	Meaning	Equivalent in foreign language (reference)
1015	BUNKŌ RITTAIKAKU HANSHA RITSU, SUPEKUTORU RITTAIKAKU HANSHA RITSU 分光立体角反射率, スペクトル立体角反射率	The ratio $\frac{\phi_{s2}}{\phi_{s1}}$ of spectral radiant flux ϕ_{s2} of wavelength λ reflecting from object in the limited same solid angle with illuminating under the same conditions to the spectral radiant flux ϕ_{s1} of wavelength λ reflecting from perfect reflecting diffuser. It shall be expressed by quantity symbol $R(\lambda)$.	(E) spectral reflectance factor (G) spektraler Reflexionsfaktor (m)
1016	BUNKŌ TŌKARITSU, SUPEKUTORU TŌKARITSU 分光透過率, スペクトル透過率	The ratio $\frac{\phi_{t2}}{\phi_{t1}}$ of spectral radiant flux ϕ_{t2} of wavelength λ transmitting through object to the spectral radiant flux ϕ_{t1} of wavelength λ incident in the object. It shall be expressed by quantity symbol $\tau(\lambda)$.	(E) spectral transmittance (G) spektraler Transmissionsgrad (m) (F) facteur de luminance spectrale (m)
1017	KANZEN KAKUSAN HANSHAMEN 完全拡散反射面	The ideal surface where reflects incident radiation in the same radiance in every direction and the spectral reflectance is 1.	(E) perfect reflecting diffuser (G) vollkommen mattweißer Körper bei Reflexion (m) (F) diffuseur parfait par réflexion (m)

No.	Reading Term (Japanese character)	Definition	Equivalent in foreign language (reference)
1018	KANZEN KAKUSAN TOKAMEN 完全遮蔽透過面	The ideal surface where transmits the incident radiation in the same radiance in every direction and the spectral transmittance is 1.	(E) perfect transmitting diffuser (G) vollkommen mattweißer Körper bei Transmission (m) (F) diffuseur parfait par transmission (m)

(2) Terms Mainly Concerning Colorimetry

No.	Reading Term (Japanese character)	Definition	Equivalent in foreign language (reference)
2001	IRO, SHIKISAI 色, 色彩	(1) Characteristics of visual perception capable of being divided or specified by colour name (for example gray, red, yellow green, pale blue, brown) or three attributes of colour. Remark: The names of colours shall be in accordance with JIS Z 8102. (2) Vision characteristics of object to be perceived by perception characterized by (1). (3) Qualitative characteristics of light itself to be perceived by perception characterized by (1). (4) Characteristics of colour stimulus to be expressed by a set of three numerical values such as tristimulus values to express physical stimulus to be cause of perception characterized by (1).	(E) colo(u)r (G) Farbe (f) (F) couleur (f)

No.	Reading Term (Japanese character)	Definition	Equivalent in foreign language (reference)
2002	IRO SHIGEKI 色刺激	The visible radiation to generate chromatic or achromatic colour sensation by entering in eyes.	(E) colo(u)r stimulus (G) Farbeiz (m) (F) stimulus de couleur (m)
2003	IRO SHIGEKI KANSŪ 色刺激関数	The function expressing the colour stimulus as a function of wavelength depending upon spectral concentration of radiation quantity. It shall be expressed by quantity symbol $\phi(\lambda)$.	(E) colo(u)r stimulus function (G) Farbeizfunktion (f) (F) courbe spectrale d'un stimulus de couleur (f)
2004	SŌTAI IRO SHIGEKI KANSŪ 相對色刺激関数	Relative spectral power distribution of colour stimulus function. It shall be expressed by quantity symbol $\phi(\lambda)$.	(E) relative colo(u)r stimulus function (G) Farbeizfunktion (f) (F) courbe (spectrale) relative d'un stimulus de couleur (f)
2005	IRO SHIGEKI CHI 色刺激値	The quantity to express the property of colour stimulus to be determined by tristimulus values.	(E) psychophysical colo(u)r specification (G) Farbvalenz (f) (F) specification de couleur psychophysique (f)

No.	Reading Term (Japanese character)	Definition	Equivalent in foreign language (reference)
2006	KŌGEN SHOKU 光源色	Colour of light emitted from light source. The light-source colour shall, usually, be expressed by psychophysical colour specification.	(E) light-source color (G) Farbe der Lichtquelle (f) (F) couleur de source de lumière (f)
2007	BUTTAI SHOKU 物体色	The colour of object reflecting or transmitting the light. The non-luminous object (psychophysical) colour shall, usually, be expressed by chromaticity coordinate and luminous reflectance or the like relative to specific standard illuminant. Reference: The object (perceived) colour in English means the colour to be so perceived that it belongs to the object including light emitting body (light source) and does not correspond to non-luminous object (psychophysical) colour.	(E) non-luminous object (psychophysical) color (G) Farbvalenz eines Nichtselbstleuchtlers (f) (F) couleur (psychologique) d'un objet non lumineux (f)
2008	HYŌMEN SHOKU 表面色	The colour to be perceived that it belongs to surface of opaque object diffuse reflecting the light. The surface (perceived) colour shall, usually, be expressed by hue, brightness, chroma, etc.	(E) surface (perceived) color (G) Aufsichtfarbe (f) (F) couleur (perçue) de surface (f)

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No.	Reading Term (Japanese character)	Definition	Equivalent in foreign language (reference)
2009	KAIKŌ SHOKU 開口色	The colour to be perceived under conditions such as to interfere recognition what is the object emitting light such as the colour to be seen through aperture.	(E) aperture colo(u)r, non-object (perceived) colo(u)r (G) freie Farbe (f) (F) couleur libre (perçue) (f), couleur-ouverture (perçue) (f)
2010	IRO NO HYŌJI, HYO SHOKU 色の表示, 表色	Expressing quantitatively the colour according to psychological characteristics or psychophysical characteristics. Remark: In the case of according to psychological characteristics it shall be specified by, for example, hue, brightness, chroma and in the case of according to psychophysical characteristics, by, for example, tristimulus values.	(E) colo(u)r specification (G) Farbfestlegung (f) (F) spécification des couleurs (f)
2011	HYŌSHOKU KEI 表色系	The system constituting of a series specification and definitions in order to carry out specification of colour clearly by using specific symbols.	(E) colo(u)r system (G) Farbsystem (n) (F) système de couleur (m)

No.	Reading Term (Japanese character)	Definition	Equivalent in foreign language (reference)
2012	SANSHOKU KEI HYŌSHOKU KEI 三色表色系	The system to express psychophysical colour specification of sample based on the principle that colour matching with colour stimulus of sample is possible according to the addition colour mixing of three reference stimuli selected suitably.	(E) trichromatic system, colorimetric system (G) trichromatisches System (n), Farbvalenz-System (n) (F) système trichromatique (m), système colorimétrique (m)
2013	SOKUSHOKU YŌ NO HIKARI 測色用の光	The light specified by relative spectral power distribution and to be used for calculation of tristimulus values of non-luminous object (psychophysical) colour.	(E) illuminant (G) Lichtart (f) (F) illuminant (m)

No.	Reading Term (Japanese character)	Definition	Equivalent in foreign language (reference)
2014	(SHI AI I) HYOJUN NO HIKARI (CIE) 標準の光	Illuminants for colorimetry specified by CIE. In CIE standard illuminants there are standard illuminants A, B, C, D₆₅ and other standard illuminants D. Remarks 1. <u>Standard Illuminant A</u> is the illuminant which Planckian emits at about 2856 K temperature. 2. <u>Standard Illuminant D₆₅</u> is CIE daylight illuminant at correlated colour temperature of about 6504 K, other standard illuminants D are CIE daylight illuminants at other correlated colour temperatures, and next to the standard illuminant D₆₅, standard illuminant D₅₅ (correlated colour temperature about 5503 K) and standard illuminant D₇₅(correlated colour temperature about 7504 K) should preferably be used. 3. Each standard illuminant is determined as follows with intending to represent the spectral distribution of really existing illuminants: <u>Standard Illuminant A</u> The illuminant of tungsten lamp at about 2856 K of correlated colour temperature. <u>Standard Illuminant B</u> The direct sunshine in the visible wavelength region. <u>Standard Illuminant C</u> The average daylight in the visible wavelength region. <u>Standard Illuminant D₆₅</u> The average daylight including ultraviolet region. <u>Other Standard Illuminants D</u> The daylights under various states including ultraviolet region.	(E) CIE standard illuminants (G) Normlichtarten CIE (pl) (F) illuminants normalisées CIE (pl)

No.	Reading Term (Japanese character)	Definition	Equivalent in foreign language (reference)
2015	(SHĪ AI Ī) HYŌJUN KŌGEN (CIE) 標準光源	The artificial light source the specifications of which are specified by CIE in order to realize respectively CIE standard illuminants A, B and C. Remarks 1. Each standard light source shall be as follows: <u>Standard Light Source A</u> Tungsten coil lamp of gas-in transparent bulb made burning so as the distribution temperature to become about 2856 K. <u>Standard Light Source B</u> The light source the correlated colour temperature of which has been made about 4874 K by applying the specified Davis-Gibson filter to standard light source A. <u>Standard Light Source C</u> The light source the correlated colour temperature of which has been made about 6774 K by applying the specified Davis-Gibson filter to standard light source A. 2. The artificial light source to realize the standard illuminant D₆₅ and other standard illuminants D are not yet determined.	(E) CIE standard source (G) Normlichtquellen CIE (pl) (F) sources normalisées CIE (p1)
2016	SHĪ AI Ī CHŪKŌ CIE 昼光	The illuminant having spectral distribution specified by CIE as the representative of daylight in each correlated colour temperature according to statistical procedure from the spectral determined value of many natural daylights.	(E) CIE daylight illuminant (G) Tageslichtart CIE (f) (F) illuminant lumière du jour CIE (m)

No.	Reading Term (Japanese character)	Definition	Equivalent in foreign language (reference)
2017	DEBISU-GIBUSON HUIRUTĀ デビス-ギブソンフィルター	Solution filter for conversion of colour temperature designed by R. Davis and K. S. Gibson. For example, it is used for obtaining the standard sources B, C, etc. by combining with standard source A. Remark: It is called also as DG filter.	(E) Davis-Gibson filter (G) Davis-Gibson-Filter (n) (F) filtre de Davis-Gibson (m)
2018	TŌNERUGĪ HAKUSYOKUKŌ 等エネルギー白色光	Colour stimulus the spectral concentration of which is constant over the visible wavelength region. The relative colour stimulus function $\phi(\lambda)$ is constant. Remark: This is used, in some times, as illuminant, and in that case it shall be expressed by symbol E.	(E) equi-energy spectrum (G) energiegeliches Spektrum (n) (F) spectre d'égalie énergie (m)
2019	TŌSHOKU 等色	Percepting that two colour stimuli are equal or adjusting so that these become equal.	(E) colo(u)r matching (G) Farbabgleich (m) (F) égalisation de couleur (f)
2020	GEN SHIGEKI 原刺激	In trichromatic system, the three specific colour stimuli to be base of additive mixture of colour stimuli. Remark: In XYZ colour system for symbols, [X], [Y], and [Z] shall be used, and in $X_{10}Y_{10}Z_{10}$ colour system, $[X_{10}]$, $[Y_{10}]$, and $[Z_{10}]$.	(E) reference colo(u)r stimuli (G) Primärvalenzen (pl) (F) stimulus de couleur référence (pl)

No.	Reading Term (Japanese character)	Definition	Equivalent in foreign language (reference)
2021	KIKAI GEN SHIGEKI 器械原刺激	Reference colour stimuli specified physically in a visual calorimeter based on additive mixture of colour stimuli.	(E) matching stimuli, instrumental stimuli (G) Mesvalenzen (pl) (F) stimulus primaires instrumentaux (pl)
2022	KISO SHIGEKI 基礎刺激	The specific colour stimulus (usually, white stimulus). According to this, the sizes between the reference colour stimuli of trichromatic system are specified relatively.	(E) basic stimulus (G) Mittelpunktsvalenz (f), Mittelpunktsfarbart (f) (F) stimulus de base (m)
2023	SAN SHIGEKI CHI 三刺激値	Quantity of reference colour stimuli required for colour matching with colour stimuli of sample in trichromatic system. Remark: For quantity symbol, x , y , and z shall be used in CIE 1931 standard chromatic system, and X_{10} , Y_{10} , and Z_{10} , used in CIE 1964 supplementary standard colorimetric system.	(E) tristimulus values (G) Farbwerte (pl) (F) composantes trichromatiques (pl)

No.	Reading Term (Japanese character)	Definition	Equivalent in foreign language (reference)
2024	SUPEKUTORU SAN SHIGEKI CHI スペクトル三刺激値	Tristimulus values of mono chromatic radiation of definite radiation quantity.	(E) colo(u)r matching coefficients, spectral tristimulus values (G) Spektralwerte (pl) (F) coefficients colorimétriques (pl), composantes trichromatiques spectrales (pl)
2025	TŌSHOKU KANSU 等色関数	Spectral tristimulus values expressed as the function of wavelength. Remark: For quantity symbols, in CIE 1931 standard colorimetric system $\bar{x}(\lambda)$, $\bar{y}(\lambda)$ and $\bar{z}(\lambda)$ shall be used and in CIE 1964 supplementary standard colorimetric system, $\bar{x}_{10}(\lambda)$, $\bar{y}_{10}(\lambda)$ and $\bar{z}_{10}(\lambda)$, used.	(E) colo(u)r matching functions (G) Spektralwertfunktionen (pl) (F) function colorimétriques (pl)
2026	EKKSU WAI ZETTO HYŌSHOKU KEI, SHĪ AI I ICHI KYŪ SAN ICHI HYŌSHOKU KEI XYZ表色系, CIE 1931 表色系	Colorimetric system based on colour matching functions $\bar{x}(\lambda)$, $\bar{y}(\lambda)$, and $\bar{z}(\lambda)$ employed by CIE in 1931. Remark: It is called also as "NIDO SHIYA EKKSU WAI ZETTO HYŌSHOKU KEI".	(E) CIE 1931 standard colorimetric system (G) Normvalenz-System CIE 1931 (n) (F) système de référence colorimétrique CIE 1931 (m)