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**NATIONAL STANDARD OF THE
PEOPLE'S REPUBLIC OF CHINA**

GB/T 10050-2009

Replacing GB/T 10050-1988

Optics and optical instruments -- Reference wavelengths

光学和光学仪器 参考波长

(English Translation)

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2.1 General

Foreword

This standard is equivalent to using ISO 7944:1998 "Optics and optical instruments - Reference wavelengths." this standard is equivalent translation ISO 7944:1998.

For ease of use, this standard also made the following editorial changes.

--- "This International Standard" be replaced by "this standard";

--- Delete international standards foreword.

This standard replaces GB/T 10050-1988 "Optics and optical instruments - Reference wavelengths." this standard and GB/T 10050-1988 main differences are as follows.

--- Chapter 1, "scope" in the spectacle lens increases the reference wavelength;

--- Increased 2.1 General content;

--- The GB/T 10050-1988 3.1 incorporated in Chapter 2. Table 2;

--- Table 3, an increase of helium-neon laser He-Ne wavelength;

--- Deletion of the GB/T 10050-1988 3.2 of neodymium (Nd) 1060.0nm, the GB/T 10050-1988 3.2 helium - neon (He-Ne) 632.8nm incorporated in Table 3 Chapter 2.

The standard proposed by China Machinery Industry Federation.

This standard by the National Standardization Technical Committee photon science and optics (SAC/TC103) centralized.

1 Scope

This standard specifies two for representing optical materials, optics and optical instruments as well as the spectacle lens reference wavelength, and provides primary Refractive index and Abbe number of the main dispersion as well as two reference wavelengths and the main dispersion.

2.1 General

Reference wavelength e-line 546.07nm mercury and helium d line 587.56nm. For non-use reference wavelength should ophthalmic mercury e-line. can Used as a reference wavelength other wavelengths are shown in Table 1, Table 2 and Table 3.

Note: In the future even for ophthalmic use only requires a reference wavelength.

Like e principal refractive index is the refractive index of the green mercury e line, the main dispersion is shaped like F'- C', wherein. the shape F' blue cadmium F' line refractive index, like C' red Color cadmium C' line of refractive index.

The Abbe number and the main reference wavelength dispersion $v_p e$ according to equation (1).

$v_p e = e-1$ -like shape F'- like C' (1) D is a refractive index of principal refractive index like yellow helium d line, like the main dispersion F- C shape, wherein. F is the refractive index of the blue like hydrogen F line, C-shaped red the refractive index of hydrogen C line.

The main reference wavelength dispersion and Abbe number $v_p d$ according to equation (2).

$v_p d = d-1$ -like shape C-shaped F-(2)

Table 1 and recommended reference wavelength in the visible wavelength range of the ultraviolet spectrum

The line used

UV mercury

Purple mercury

Blue Mercury

Blue cadmium

Blue Hydrogen

Green Mercury

Yellow helium

Cadmium red

Red hydrogen

Red helium

Elemental Hg Hg Hg Cd H Hg He Cd H He Wavelength/nm 365.01a 404.66 435.83 479.99
486.13 546.07 587.56 643.85 656.27 706.52 Reference wavelength /nm - - - - 546.07
587.56 - - -Principal refractive index - - - - shaped like e d - - -Hg using a singlet-triplet.

Table 2 Recommended infrared spectral band wavelengths

Element	rubidium	Rb	Cs	cesium	Hg	Mercury	Hg	Mercury	Hg	Mercury	Hg	Mercury	Hg
Wavelength/nm	780.0	852.11a	1013.98b	1128.66	1395.1	1529.6	1813.1	1970.1	2325.4	a cesium s;			

b Mercury g.

GB/T 10050-2009/ISO 7944:1998