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

GB 19261-2009

Replacing GB 19261-2003

General and safety requirements of neon lamps

霓虹灯管的一般要求和安全要求

(English Translation)

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Foreword

This standard 4.4,4.5,4.7,4.8 technical content are mandatory, the rest are recommended.

This standard is GB 19261-2003 "General requirements and safety requirements of neon tubes" amendments.

This standard replaces GB 19261-2003 "General requirements and safety requirements of neon tubes." this standard compared with GB 19261-2003, the main differences are as follows.

--- Increasing the outer diameter of 6mm and 16mm neon standard parameters. The standard scope adjusted to the outer diameter of 6mm ~ 16mm, inner tube filled with neon gas or mercury-argon gas mixture of neon;

--- Neon tubes adjusted starting voltage range and brightness parameters.

The Standard Appendix A, Appendix B, Appendix C, Appendix D, Appendix E are normative appendices.

The standard proposed by China National Light Industry Council.

This standard by the National Standardization Technical Committee of electrical lighting (SAC/TC224) centralized.

This standard was drafted. National Electric Light Source Quality Supervision and Inspection Center (Shanghai), Beijing Lighting Research Institute.

1 Scope

This standard specifies the definition of neon tubes, the main dimensions, the basic parameters, technical requirements, test methods, inspection rules and signs, packaging and transport.

This standard applies to an outer diameter of 6mm ~ 16mm, filled with neon or mercury-argon gas mixture of neon inner tube.

2 Normative references

The following documents contain provisions which, through reference in this standard and become the standard terms. For dated references, subsequent Amendments (not including errata content) or revisions do not apply to this standard, however, encourage the parties to the agreement are based on research Whether the latest versions of these documents. For undated reference documents, the latest versions apply to this standard.

GB/T 2828.1 Sampling procedures for inspection - Part 1. by acceptance quality limit (AQL) retrieval batch inspection sampling plan (GB/T 2828.1-2003, ISO 2859.1:1999, IDT) GB/T 2829 periodic inspection Sampling procedures and tables (suitable for process stability test) GB 19149-load output voltage exceeding 1000V tubular discharge lamps transformer (neon - transformers) General and safety requirements Requirements (GB 19149-2003, IEC 61050:1991, IDT)

3 Terms and Definitions

The following terms and definitions apply to this standard.

Low pressure cold cathode glow discharge lamp.

In the light of neon tubes filled with neon gas. This lamp light, neon glow discharge is directly emits red light.

The lamp is filled with argon and mercury neon tubes. This lamp light, UV mercury atoms released when the glow discharge excitation Coated on the inner wall of the lamp phosphor layer, converted to emit visible light, or emit visible light through the stained glass.

The same project used the same color of the lamp as a group.

The length of the light emitting portion of the lamp, with L said that the unit m.

In the mercury-argon tube, the tube and the electrode junction (or at sintering) is not part of the powder coating.

After the initial characteristics of the lamp when the ignition 100h.

Lamp ignition to the cumulative time does not work when.

The number of test samples for the N life test in accordance with the order of light damage, the first $(N + 1)/2$ lamp life (N is an odd number) or $N/2$ branch of $N/2 + 1$ Zhi life of the lamp and the $1/2$ (N is an even number), called batch average life of the lamp.

3.10

For the same distance, lighted tube to the initial ratio of luminance value of the predetermined time and illumination lamp, expressed as a percentage.

4.1 Appearance

4.1.1

glass tube and the phosphor coating defects and should not affect the use of lighting effects.

4.1.2

After initial lamp ignition, the wall should not have significant deposits of mercury oxide.

4.1.3

bent portion of the tube should not have obvious defects collapse folded edge deflated.

4.1.4

color tubes with light colors group should not have obvious differences.

4.1.5

coated with a phosphor tube joints Ming tube length should not exceed 5mm, and can not obviously black.

4.1.6

tube exhaust pipe ends should be smooth, not with spikes.

4.1.7

straight tube fluorescent tubes should not have an S-shaped bend, bowed should not exceed 3mm/m.

4.2 initial characteristics of the lamp shall comply with the provisions in Table 1.

Optical performance parameters in Table 1 lamp no. Lamp color specification Starting voltage (Max) /Lamp voltage /Lamp current /mA brightness (Min) $\times 10^3 \text{cd/m}^2$ Neon tube Argon tube 1100 + 1200L 400 + 450L 230 + 700L ~ 270 + 800L 230 + 450L ~ 270 + 650L 2.0 3.5 1.4 3.5 3.2 Note. L is the effective length. Argon stained glass neon tubes, whose brightness is not less than 50% with the specifications of a transparent glass tube.

Life and illumination maintenance 4.3 lamps not less than the values specified in Table 2.

Table 2 neon tube life

No. Lamp

Average life expectancy /Illumination maintenance eta (Ignition to 2000h) /1 neon tube ≥ 10000 ≥ 95 2 mercury-argon tube ≥ 8000 ≥ 90 4.4 should be firmly connected to the lamp lead, should be able to withstand axial tension 20N, the connecting portion is applied should be moisture-proof, heat resistance, durability coating Material or covered with an insulating material wrapped.

4.5 After the vibration test lamp should remain normal start and ignition.

4.6 lamp shall be able to start and ignition at $-40\text{ }^{\circ}\text{C}$ ~ $50\text{ }^{\circ}\text{C}$ high and low temperature environments.

4.7 glass tube lamp electrode temperature should be below $55\text{ }^{\circ}\text{C}$.

4.8 lamp shall withstand the test without damage 100K sudden changes in temperature.

5 Test methods

5.1

appearance quality lamp (4.1) to be checked or measured with a vernier caliper or visually.

The initial characteristics of the lamp 5.2 (4.2) according to the provisions of Appendix A and Appendix B of the measurement.

Life and lamp illumination maintenance 5.3 (4.3) test method in accordance with Appendix C and Appendix B requirements.

5.4

connection firmness lamp lead wire (4.4) with the error of less than 0.1N of force gauge check. Moisture-proof coating layer by visual inspection.

5.5

tube vibration-resistance properties (4.5) test is rigidly fixed to the tube vibration table, vibration frequency of the vibrating table should sweep 1Hz ~ 30Hz, amplitude 2mm, vertical vibration after 5min, input by adding a predetermined starting voltage, check whether it is normal lamp ignition.

5.6

normal operating temperature range of the lamp (4.6) is placed in each tube $-40\text{ }^{\circ}\text{C}$ environment and each $+50\text{ }^{\circ}\text{C}$ in 2h after, were examined Lamps in low and high temperature environment, under the specified starting voltage, whether the normal start and maintain ignition.