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

GB/T 7661-2009

Replacing GB/T 7661-1987

Bubble classes of optical elements

光学零件气泡度

(English Translation)

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Foreword

This corresponds to the standard ISO 10110-3:1996 "Optics and optical instruments optical components and optical system design - Part 3. Materials missing Bubbles and impurities trapped "(in English), and ISO 10110-3:1996 is not equivalent degree of consistency.

This standard and ISO 10110-3:1996 The main differences are as follows.

- Increasing the degree bubble of terms and definitions;
- Increasing the bubble of not note tolerance;
- Increased substantially in terms of the number of stages of decomposition into smaller sample series;
- Increasing the number of stages corresponding to the cross-sectional diameter circular bubbles or impurities;
- Increased tolerance of the composite label;
- Increased test methods.

This standard replaces GB/T 7761-1987 "bubble of optical parts," this standard and GB/T 7761-1987 The main differences are as follows.

- Increasing the number of stages, conversion factors and other terms and definitions (GB/T 7761-1987 Chapter 1, Chapter 3 of this standard);
- Bubbles and impurities from the size to the diameter of the series (the square root of cross-sectional area) that uses a common ratio and priority number 1.6 Series (GB/T 7761-1987 Chapter 1 of the standard 3.4 and 4.2.2);
- Bubble tolerance and unity with the basic series allows the number represents (this standard 4.2.1);
- Increasing the bubble of not note tolerance (this standard 4.3);
- Increasing the number of basic stages and allow decomposition (4.4 of this standard);

- Increasing the density limit (in this standard 4.5);
- Modified bubble of code and markup method (GB/T 7761-1987 of Chapter 2, Chapter 5 of this standard);
- Revised test methods, increased by the diameter of the corresponding series of measurement and comparison using standard plate comparison method (GB/T 7761-, The first chapter of the standard 61987 Chapter 3);
- Remove the optical components of the bubble and the bubble of a given blank Details (GB/T 7761-1987 Appendix A).

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 the terms and definitions of the optical component materials bubble, tolerance, decomposition, labels and test methods.

This standard applies to optical parts of the material produced in the process of bubbles and impurities.

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 1185-2006 optical components surface flaws (ISO 10110-7:1996,
Opticsandopticalinstruments-Preparationofdrawingsforopticalelementsandsystems-Part 7. Surfaceimperfectiontolerances, NEQ; ISO 14997:2003,
Opticsandopticalinstruments-Testmethodsforsurfaceimperfectionsofop-ticalelements, NEQ)
GB/T 13323 Optical Mapping (GB/T 13323-2009, ISO 10110-1:2006,
Opticsandphotonics-Prepara-tionofdrawingsforopticalelementsandsystems-Part 1. General, NEQ)

3 Terms and Definitions

The following terms and definitions apply to this standard.

In the optical material gas remaining in the voids, generally circular in cross section.

NOTE: opening the bubbles on the finished optical parts as a surface flaw assessment.

Cross-section of the optical material substantially circular partial flaws, defects containing solid particles and stripes.

Note: The optical material impurities and bubbles are generated in the manufacturing process, its size, the number and categories of materials and manufacturing processes.

Optical parts and materials in the extent permitted by the presence of bubbles and impurities (characterization of the size of the series, and the number).

Characterization and size of bubbles and impurities in millimeters (mm) for the numerical classification units. Series is the cross sectional area of the square bubbles and impurities Roots, but also the maximum level of impurities and bubbles. Bubble and impurity tolerances specified maximum called basic series (A).

In the bubbles and impurities without changing the total cross-sectional area, the bubble of the basic series (A) of the bubbles and impurities, broken down into several smaller level Multiplier number (A ') of the bubbles and impurities, also known series conversion factor (k). Corresponding to the number of permits multiplication factor is called the number change Operators coefficient ($k' = k^2$).